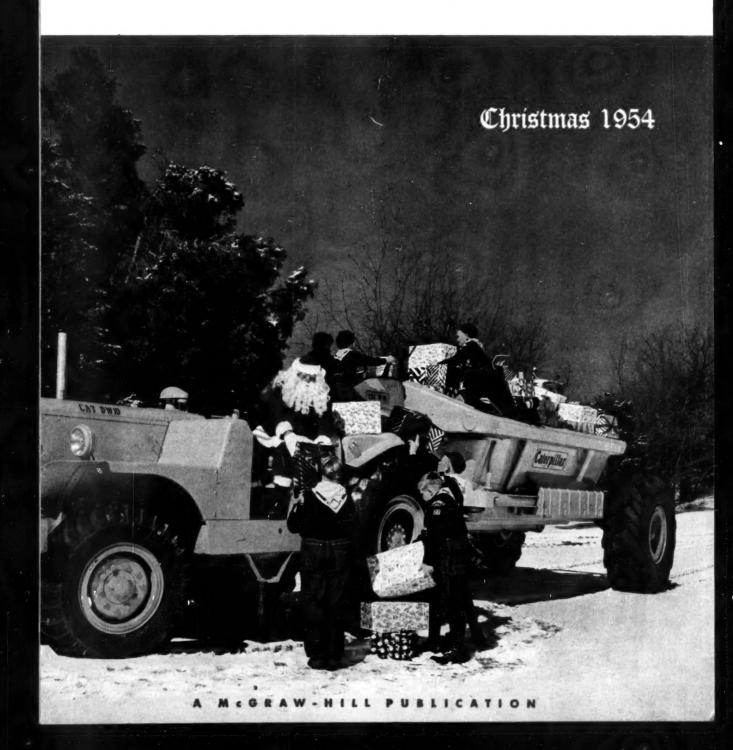
50 CENTS

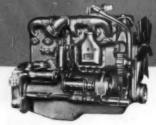
# CONSTRUCTION

METHODS AND EQUIPMENT



when BIG displacement Buda Diesels give you so many advantages?







### **BUDA Diesel Advantage:**

- 12 to 18% MORE HORSEPOWER AT NORMAL OPERATING SPEEDS
- 10 to 17% MORE USEABLE TORQUE
- SMOOTHER, QUIETER **OPERATION**
- **EXCLUSIVE DYNA-SWIRL** COMBUSTION

Faster trips . . . heaped loads . . . more production . . . greater reserve . . . lower cost per yard

Greater lugging ability . . . less shifting and jerking . . . longer equipment life . . . reduced maintenance and downtime

Increased operator comfort . . . less exhaust fumes and smoke . . . greater efficiency . . . more production per shift

More horsepower per gallon of fuel . . lower all around fuel costs

You can't afford not to know all the facts about BIG displacement Buda Diesels-the engines that will increase your production while reducing costs on every yard you move. Ask your nearby Buda Engine Distributor. He'll be glad to supply the facts. The Buda Company, Harvey Illinois. Division of Allis-Chalmers Manufacturing Company.



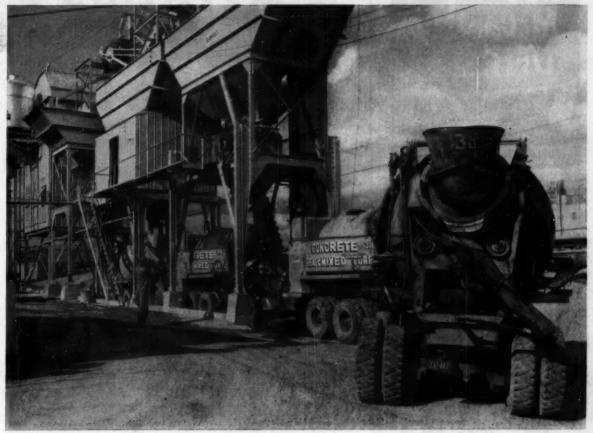


a Power-Full and Dependable Engine FOR EVERY NEED





# B.F.Goodrich



# Universal tires average 40,000 miles in concrete delivery service

THE Concrete Ready Mixed Corp. delivers concrete to construction sites around Roanoke, Va. The trucks work 60 hours a week hauling gross



CONCRETE READY MIXED CORP. reports they save 60% by being able to recap B. F. Goodrich Universal tires. They say the specially-compounded Universal tread gives so much traction, they never need chains.

loads of 20 tons over all types of roads, often over no roads at all.

For rugged service like this, the company specifies B. F. Goodrich Universal tires, reports they defy rock cuts and bruises, roll 40,000 miles and can be recapped!

### All-Nylon cord body

Universal tires wear longer because they are built with an all-nylon cord body (sizes 12.00 and larger). Nylon is stronger than ordinary cord materials, withstands double the impact and resists heat blowouts and flex breaks.

Under the tread is the B.F. Goodrich nylon shock shield. Layers of strong nylon cords stretch together to absorb and distribute impacts and shocks. Result: Universal tires wear longer, can be recapped more times. You pay nothing extra for this patented B. F. Goodrich nylon shock shield.

See all-nylon Universal tires at your B. F. Goodrich retailer's (smaller sizes in all-nylon or rayon construction). They'll cut your tire costs by giving you longer, trouble-free service. For the BFG address, look under Tires in the Yellow Pages of your phone book, or write The B. F. Goodrich Company, Tire & Equipment Division, Akron 18, O.

Specify B. F. Goodrich tires when ordering new equipment.





### PUBLIC UTILITY AUGER DRILL



Will bore 6" and 8" diameter holes 120 feet horisontally at rate of six feet per minute maximum. Four individual, self-locking jacks maintain correct drilling level. In one day a New Castle, Pa., operator bored holes of various depths totaling \$40 ft. through shale and sandstone, using this McCarthy Auger Drill.



### VERTICAL AUGER DRILL

VERTICAL AUGER URILL
Operating men who have made actual onthe-job tests find the McCarthy Vertical
Auger Drill a standout for mobility, staning, ruggedness and versatility. On a
2-million dollar, 5-mile stretch of superhighway between Hubbard, Ohio, and Sharon,
Pa., The Apex Powder Co., Canton, Ohio,
cut blasting costs approximately 20% as
compared to air, well or churn drilling.
Cutting through two large areas of concentrated rock, 150 holes 15 test deep were
bored fer each blasting pattern. 3,000
cubic yards of sand rock were moved at
each blast. Due to the ruggedness and
mobility of McCarthy Drills, there was no
time lost. For further information, write
Salem Tool Co. and our distributor will
contact you.



BRILLING FOUIPMENT SINCE 1901

### THE SALEM TOOL CO.

765 SOUTH ELLSWORTH AVE. SALEM, OHIO . U.S.A.

### CONSTRUCTION METHOD Volume 36

1919

AND EQUIPMENT

### December 1954

Publisher

R. F. BOGER

Editor

HENRY T. PEREZ

Managing Editor IRA F. ANGSTADT

Associate Editors

New York: RALPH H. LEWIS ALBERT C. SMITH

San Francisco: L. L. WISE Washington:

V. B. SMITH

Assistant Editor

Layout: NELLE FITZGERALD Assistant: DOLORES MULLIGAN

Editorial Secretary

PEGGY HAMILL

Business News

Manager:

ELSIE EAVES

Labor Editor

LEON B. KROMER, Jr.

Domestic News Bureaus:

ATLANTA · CLEVELAND

HOUSTON . DETROIT SAN FRANCISC . WASHINGTON

Foreign News Bureaus:

LONDON . PARIS . BONN

MEXICO CITY . SAO PAULO

TOKYO · MELBOURNE

### CONSTRUCTION METHODS AND EQUIPMENT



### **Merry Christmas!**

Yuletide gifts are heaped high on a shiny yellow Caterpillar W10 wagon by eager helpers. Construction took a back seat for a while when the Caterpillar Tractor Co. staged this colorful "Operation Christmas" in Peoria's Detweiler Park. Santa is Thomas J. Shawl. Cub Scouts, of East Peoria Pack 27, are Don Dabney, Robert Zendt, David Cole, David Schultz, William Carr and Tom Arnold.

AN EDITORIAL INDEX of articles published in Construction METHODS AND EQUIPMENT during 1954 is available to readers and libraries. Copies will be mailed free of charge—only upon request. The index is published separately, does not appear in the magazine.



Member ABC and ABP

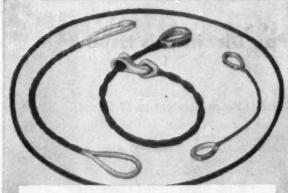


Published monthly by McGraw-Hill Publishing Co., Inc., James H. McGraw (1860-1948) Founder.

Editorial, Executive and Advertising offices: McGraw-Hill Building, 380 W. 42nd St., New York 36, N. Y. Donald C. McGraw, President; Willard Chevaller, Executive Vice-President; Joseph A. Gerardi, Vice-President and Treasurer; John J. Cooke, Secretary; Paul Montgomery, Senior Vice-President, Publications Division; Ralph B. Smith, Vice-President and Editorial Director; Nelson Bond, Vice-President and Director of Advertising; J. E. Blackburn, Jr., Vice-President and Director of Circulation.

Subscriptions: Address correspondence to Construction Methods and Equipment—Subscription Service, 330 W. 42nd St., New York 36, N. Y. Allow ten days for change of address. Subscriptions are solicited only from persons engaged in construction or in supplying the construction industry. Position and company connection must be indicated or subscription orders.

Single copies 50¢. Subscription rates—United States and possessions \$3.00 a year; \$4.00 for two years; \$5.00 for three years. Canada \$4.00 a year; \$6.00 for two years; \$5.00 for three years. Canada \$4.00 a year; \$6.00 for two years; \$5.00 for three years. All other countries \$15.00 a year; \$25.00 for two years; \$30.00 for three years. All other countries \$15.00 a year; \$25.00 for two years; \$30.00 for three years. Re-entered as second-class matter July 14, 1949. at the Post Office at New York, N. Y., under the Act of March 3, 1879. Printed in U.S.A. Copyright 1954 by McGraw-Hill Publishing Co., Inc.—All Rights Reserved.



### **Braided Wire Rope Slings**

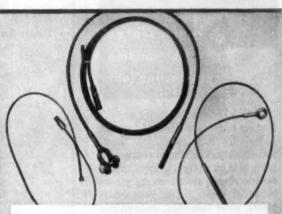
Materials handling—from unloading a car of pipe to handling a 200-ton generator—requires a wide variety of safe, economical, easy-to-handle slings. The sizes and types of Macwhyte Slings are practically unlimited—they are available in many standard designs or can be custom-made. Bulletin lists and illustrates many types and body styles in Round-Braided, Flat-Braided and Single-Part Slings. Specify Bulletin 5308.

The proper choice
from this wide variety
of wire rope products
means —
LONGER and SAFER SERVICE



### Wire Rope

Proper selection of wire rope is most important in getting safe, economical operation. To provide the right ropes for each of the many kinds of equipment, Macwhyte Company makes a thousand and one types and sizes. Included are PREformed Internally Lubricated Ropes, Galvanized Ropes, Stainless Steel, and Monel Metal Ropes. Request Catalog G-16.



### Wire Rope Assemblies

Safe-Lock Wire Rope Assemblies provide a unit of wire rope with permanently attached fittings made to specified size, length, and strength needed. A wide selection of fittings and wire rope are made for use on small gasoline powered equipment; outboard motors; mining and excavating machines; agricultural implements; automotive, aircraft, marine, and laboratory equipment. Ask for Catalog 5201.

Recommendations for the correct wire rope product for your needs will be gladly furnished.

# MACWHYTE

MACWHYTE COMPANY 2941 Fourteenth Avenue Kenosha, Wisconsin

Manufacturers of Internally Lubricated PRE-formed Wire Rope, Braided Wire Rope Slings, Aircraft Cables and Assemblies, Galvanized, Monel Metal, Stainless Steel Wire Rope, and Wire Rope Assemblies.



Mill Depots:

New York • Pittsburgh • Chicago St. Paul • Ft. Worth • Portland Seattle • San Francisco • Los Angeles



● Quickly accepted by the nation's leading engineers and contractors, Labyrinth Waterstops—the first really satisfactory water seals—are now being used on all types of jobs...hydro electric plants, atomic energy plants, industrial plants, water and sewage plants, water reservoirs, underground and surface parking lots, swimming pools plus a host of lesser projects. (Names, and details furnished on request.) Why not get additional information on this time and money saving water seal? Just mail coupon below.



Mode in Canada for J. E. Goodman Sales Ltd.
Toronto, Ontario

 	 -	 -	 -		

WATER SEALS, INC.

9 South Clinten Street Dept.

Please send complete information on Labyrigh Waterstons.

C------

Address

City\_\_\_\_\_\_ Your State\_

### Pay Dirt in This Issue

December, 1954

### Chimney Reaches Record Height in 71 Pours .... 60

Cables from interior scaffolding and hoist towers support and raise unusual steel forms for world's three tallest chimneys. Rising 707 ft above foundation slabs, each is nearly 100 ft higher than previous record holder.

### Turnpike Paved With Plant-Mixed Concrete .... 63

To pave a 10-mi section of the Ohio Turnpike, D. W. Winkelman Co. sets up a mixing plant at the middle of the job and hauls concrete to the paving site in 4-yd Dumpcretes. The method eliminated pavers and water trucks.

### Old Ditch Becomes New Canal ..... 52

Texas contractor builds special V-blades for bulldozers to shape canal section; also devises self-propelled jumbo to lay reinforcing mesh for canal's concrete lining.

#### 

Deep-well pumps and open-sheeting cofferdams team up to beat a tough excavation problem during the construction of the anchorages for the new Delaware River Bridge.

#### 

Large asphalt plant, fleet of big trucks and good weather aid California contractor in placing two-lane pavement.

### 

Self-contained drill rigs on crawler tractors move easily over rough ground and reduce the drilling crew.

#### 

Special formwork is required for unusual projects but panel sections often can be designed for repeated usage.

### Hydraulic Concrete and Rock Buster ..... 98

By inserting Roc-Jak into drilled hole and expanding mechanism, masonry chunks are broken off easily, safely.

Job Talk 6	Vibrating Roller Densifies Fill
It's Your Business 20	Mobile Batch Plant Pays Off
Picture of the Month 40	Gravel Mountain Serves Alcan110
Construction News in Pictures	Contractor-Labor Relations
Editorial	Construction Equipment News
Asphalt Paver Has Long Reach 55	Concrete Trowel Has "Heft"
Erect Arches With Crane, Towers 90	Attachments Make the Trucks
Mathada Mema	152

MONTH

Diversion of the Snake River in Idaho by Palisades Contractors was accomplished in only 2½ hr with huge boulders to hold the fill in the fast-flowing stream. Read how it was done in the January 1955 issue of CM&E.

# **Concrete Prefabrication Pays**



Charlotte Grocers Mutual Warehouse, 60,000 sq. ft. floor area, in "Acres for Industry" development, ten minutes from center of Charlotte, N. C.

Concrete prefabrication is growing by leaps and bounds, thanks to the economies of prestressed concrete members. This well-designed warehouse has precast girders, purlins and roof planks, all prestressed, as well as precast columns, fabricated at assembly-line speed with 'Incor'\* 24-Hour Cement.

Designed for the material and method, prefabrication resulted in lowest construction cost, for a structure embodying utmost fire-safety and durability, with minimum insurance rates and lowest upkeep. Advantages well worth considering. \*Reg. U. S. Pat. Off.



'Incor' concrete columns, 14" x 14", with 20" x 20" capitals, were precast at job site. Poured in morning, stripped in afternoon—48 columns produced in 12 days.



42 prestressed 'Incor' girders, each 45' long, 30" deep, top flange 12" wide, bottom flange 20" wide, web 5" thick, were cured and stripped in less than 24 hours.



Precast, prestressed 'Incor' concrete purlins, Lshape, 8' wide top and bottom flanges, 3' web, 18" deep, 24' in length, with angles for welding to girders and columns.

### CHARLOTTE GROCERS MUTUAL WAREHOUSE

"Acres for Industry"
Charlotte, N. C.

General Contractor:

J. A. JONES CONSTRUCTION CO.

Architect & Engineer: J. N. PEASE & CO.

Precast Structural Members and Roof Planks Ready-Mix 'Incor' Concrete: CONCRETE MATERIALS, INC.

-all of Charlotte, N. C.



Total of 60,000 sq. ft. precast roof planks, each 1¾" x 18" x 18 ft., were pretensioned at the casting plant. These planks butt together and have recesses for grouting.



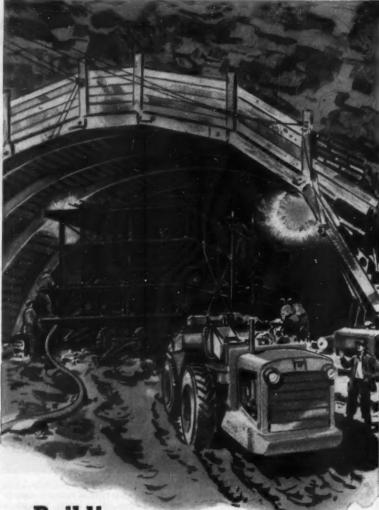
At pretensioning bench, 'Incor' concrete produced stripping strengths in 18-24 hours, setting tempo of assembly-line operation as basis of substantial production economy.



LONE STAR CEMENT

Offices: ABILENE, TEX. - ALBANY, N.Y. - BETMLEHEM, PA.
BIRMINGHAM - BOSTON - CHICAGO - DALLAS - HOUSTON
INDIANAPOLIS - KANSAS CITY, MO. - NEW ORLEANS - NEW YORK
HORFOLK - RICHMOND - WASHINGTON, D. C.

LONE STAR CEMENT, WITH ITS SUBSIDIARIES, IS ONE OF THE WORLD'S LARGEST CEMENT PRODUCERS: 18 MODERN MILLS, 136,000,000 SACKS ANNUAL CAPACITY



## Building a Reputation

Consistent achievement year after year — that's what makes a reputation, especially in a field as demanding and complicated as tunnel construction.

In the field of bonding, too, consistently good service to contractors has won an outstanding reputation for the Ætna Casualty and Surety Company. For years, the Ætna has been known for prompt, expert service — on jobs of all sizes, in all sections of the country.

The next time you need a bond, why not join the many hundreds of leading contractors who bond with Ætna — always.

### No job too big-no job too small

### ÆTNA CASUALTY AND SURETY COMPANY

APPLIATED COMPANIES: ATMA LIFE INSURANCE COMPANY
AUTOMOBILE INSURANCE COMPANY • STANDARD FIRE INSURANCE COMPANY
HARTFORD 15, CONNECTICUT



### \* JOB TALK \*

### ...On Hardfacing

SERVICE LIFE of equipment of the McCarthy Improvement Co., large Davenport, Iowa, contractor, has been increased a number of times over in many cases with newer methods for renewal of worn parts. McCarthy maintains maintenance shops at construction sites, but most equipment is brought into the main shop in Davenport for overhaul at least once a year.

Rebuilding of worn parts on heavy equipment receives high priority and McCarthy's hard-surfacing operations have been designed to get the best high-quality production possible.



### Crawler Rollers . . .

Worn track rollers on tractors go through planned hardfacing, with the weld metal applied by a manual hidden arc and new hardfacing fluxes. Idler rollers are mounted on a turntable, three at a time, and rotated under the "Squirt" welder gun. The equipment used is made by the Lincoln Electric Co., Cleveland.

Hardfaced rollers are trued up in a lathe to improve tractor operation. A shop-built tool post grinder was rigged on the lathe, and set-up time in the lathe is practically nil because rollers are slipped easily between large cone centers.

Worn front idlers are set in a motor-driven positioner, and the hardfacing applied with an automatic head which not only does a

(Continued on page 10)

# There is nothing Snappier with a Clam!

With Northwest equipment it's easier to keep ahead. Northwest Uniform Pressure Swing Clutches make spotting the load easier. They eliminate the jerks and grabs that set a load to swinging. Northwest Crawlers make maneuvering and changing position easier. The "Feather-Touch" Clutch Control gives ease of operation and feel of the load without the complications of delicate valves, pumps and tubing. There are no delays occasioned for intricate adjustments requiring special knowledge. Mast type gantry simplifies reducing clearances for traveling.

Smooth, easy convertibility that results in operation and performance over and above a mere change of booms, means increased output whether converting to a Shovel, a Dragline or a Pullshovel.

These are a few of the reasons why Northwest Cranes are repeat orders with successful contractors everywhere. If you need a Crane, either on crawlers or rubber mounted talk your problem over with a Northwest Man.

NORTHWEST ENGINEERING COMPANY

1503 Field Building

135 South LaSalle Street, Chicago 3, Illinois

NORTHWEST

CRAWLER and TRUCK MOUNTED SHOVELS - CRANES - DRAGLINES - PULLSHOVELS

# Here's the simplest diesel fuel system ever developed!

Simplest pump and fuel control arrangement

Simple gear pum

Strainer

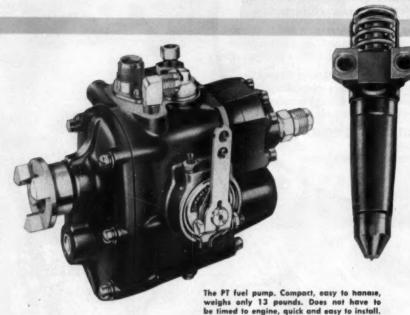
Trouble-proof pressure regulator



fuel tenk

By-pass to pump

Cummins new I fuel system.



The PT injector utilizes the exclusive Cummins principle of fuel injection which has set the highest standards of performance and economy for more than 20 years.

THE revolutionary new PT fuel system, now standard on all Cummins Diesels, has fewer and far simpler parts than carburetor and ignition systems or ordinary diesel fuel systems. It is easy to understand, simple to work with, can be serviced by any mechanic. No longer any need for fuel system specialists! The PT fuel system has under-

gone two years of field testing and millions of operating miles under every conceivable condition. Its dependability record is phenomenal. Operators report even less fuel consumption than with earlier Cummins fuel systems and far less cost of maintenance. The PT fuel system can be installed on any Cummins Diesel built since 1932.

### **Cummins**

leader in lightweight high speed diesel power

Cummins Diesels (60 to 600 h.p.) are built for and used by original equipment manufacturers in highway trucks, off-highway trucks, power shovels, scraper units, buses, motor graders, logging yarders and loaders, oil well drilling rigs, electric power generators, irrigation systems, work boats, and pleasure craft.











Return to fuel tank

### PT advantages over gasoline systems:

No contact points to adjust No condenser to replace No spark coil to short No wiring harness to short No spark plugs

No vapor-lock problems No flooding No choking or priming
No needle valves to clog
No butterfly valve
No float level to maintain No float valve to stick

### PT advantages over ordinary diesel systems:

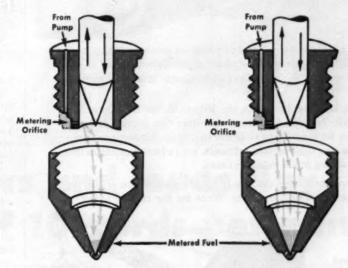
No fuel rack adjust-No check valves No needle valves No helixes

No distributor discs No metering pumps No high-pressure fuel lines No fuel pump timing

### simpler to work with than gasoline carburetion and ignition

### Simplest Fuel **Metering Device**

The principle is simply that the amount of fuel flowing through a fixed orifice varies according to the amount of pressure on the fuel. Pressure is controlled by the throttle on the PT pump. Fuel flow through orifice is cut off as injector plunger, actuated by engine camshaft, moves down to inject fuel.



When engine is under partial load, fuel pressure is low, and only a small amount of fuel passes through orifice into injector

When engine is under full load, fuel pressure is increased, and greater amount of fuel passes through orifice into injector

Mail this today, and get more PT facts!

CUMMINS ENGINE COMPANY, INC. Columbus, Indiana

DEPT. CM-12

Please send me free illustrated folder, "Cummins PT Fuel System."

Name

Company

Address

City.

Zone State 

### MINUTE MAN



MIRACLE is a strong word but when the operator of this trailer can detach the gooseneck—unload a ponderous shovel and reattach the gooseneck in as little as 5 minutes it is truly miraculous.

This is being done with the Rogers Power-Lift Detachable Gooseneck Trailers. Moreover, operators can quickly lower the gooseneck for the load to clear low overhead obstructions or raise it to pass over high banked railroads, etc., often avoiding detouring and saving much valuable time.

If you don't have the late Rogers literature, you're not "up" on recent trailer developments. Write for the catalog today.



ROGERS BROS. CORP. ALBION, PENNA.

Export Office: 50 Church St., New York 7, N.Y. U.S.A.—Cable Address: Brosites



Divided bed, tilt deck trailer with gooseneck.

### JOB TALK . .. Continued from page 6

good job across the face but also is good to get metal into worn corners of flanges. Idler spokes are preheated with a gas torch. A new agglomerated flux aids automatic hardfacing, because the fluxes add alloys that enable a mild steel electrode to create a dense hardfacing weld.



#### Tractor Rails ...

Continuous application of hardfacing on the rails of tractor treads with a self-propelled Lincoln automatic welding head brings a time saving of 16 hr per track. Grousers are not removed.

Tracks are locked face down into a steel trough 30 ft long, made by laying an 18-in. I-beam on its side. The type track illustrated is secured with  $2\frac{1}{2}$ -in. line shafting placed between the rows of rails and bolted to the I-beam. Alignment of track rails is done with the pointer of the welding head which makes a trial run across the "course" before hardfacing begins.

Spaces above the track pads and around rails are packed with flux to shield bolts and pins from the heat. Another heat-dissipating device is long, flat copper bars placed along the track and below the rails to draw heat away from the case-hardened bolts.

Weld deposits are placed continuous, without regard to joints between track links—although the slots are filled partially with flux to reduce the thickness of weld metal deposited there. Excess metal in the joints is removed with a cutting torch after tracks have cooled.

Hardfacing is applied in one pass to each half of track. Several types of materials are undergoing (Continued on page 16)

# ADAMS Motor Grader with Elegrader



# Plows and loads clay at rate of 10 yards per minute

The Adams Motor Grader-Elegrader combination pictured above is owned by a prominent contractor. It is shown here loading fill material out of a borrow pit. Cutting up to 24" deep and 12" wide, the outfit plows clay and loads trucks at the rate of 10 yards per minute.

On such jobs as loading, stripping, casting in new roads, terracing, etc., this great Adams combination is unsurpassed for economy of operation, ease of handling and dirt-moving ability. On jobs where it has no application, the Elegrader can be easily removed and blade put on for normal grading operations.

Let your local dealer show you how an Adams Motor Grader with Elegrader will step up production, cut costs and increase profits for you.

J. D. ADAMS MANUFACTURING CO. · INDIANAPOLIS, INDIANA









Motor Graders

TraveLoaders

**Pull-Type Graders** 



### May this be your merriest, most prosperous holiday season

There's a friendly smile on the frost-nipped face of America

-the season of good cheer is with us once again! So we're taking this opportunity
to extend greetings to you—the truck-users
of the nation. Our wish for the New Year is that we may continue to serve you.

# Season's Greetings from DODGE Job Rated TRUCKS

A PRODUCT OF CHRYSLER CORPORATION

# CLARK-TORCON

one strong source for industry's most



THE DESIGN and field experience of Torcon, ploneers in the development of industrial torque convertors...

THE QUALITY manufacturing experience and versatile plant facilities of Clark Equipment Company...

COMBINE to provide you with industry's broadest line of industrial torque converters—11", 13", 14", 15", 16", 17", 18", 19" and 26", 30 to 600 hp. We welcome your inquiry . . . write to our Jackson, Michigan plant for information on how we can serve you.



COMPAN

JACKSON, MICHEGAN





OHIO TURNPIKE. Max Julian, Angola, Indiana, holder of a 1,000,000-cubic yard earthmoving sub-contract, rates INTERNATIONALS this way: "My TD-24 powered scrapers can't be beat for production and my 2T-75 high-speed earthmovers are faster, sturdier and haul more weighed yards per trip than any others with the same capacity."

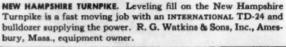


MAINE TURNPIKE EXTENSION. DeMatteo Construction Co., Quincy, Mass., team these three INTERNATIONAL Model 2T-75s with 8 TD-24s with dozers and scrapers to move 1,250,000 cu. yds. of borrow on 9.145-mile Turnpike contract.



WEST VIRGINIA TURNPIKE. Bates and Rogers Construction Corp., Chicago, find the INTERNATIONAL TD-18A crawler and 3 cu. yd. INTERNATIONAL DROTT Skid-Shovel a great all-around performer in constructing ½-mile tunnel between Standard and Fairfield, W. Va.

WEST VIRGINIA TURNPIKE, Morrison-Knudsen Co., Inc. and R. E. Mills Company, Cabin Creek, West Virginia, used INTERNATIONAL TD-24 to push-load scrapers on a 9-mile contract on the recently opened West Virginia Turnpike.







# works on the Superhighways

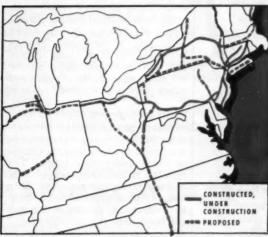
From pioneering to paving, INTERNATIONAL equipment speeds the nationwide superhighway projects with lower costs and greater contractor profit.

Contractors who build super roads buy INTER-NATIONAL equipment for the same reason the general public snaps up Turnpike bonds-IH is a shrewd, safe investment netting top returns.

There's one common characteristic about all INTERNATIONAL earthmoving equipmentit is designed to move more paydirt for less money from start to finish on every job. Best thing is that these operating advantages are available to all contractors-fleet owners and owners of a single tractor, alike.

Call your INTERNATIONAL Industrial Power Distributor today for full details or an onyour-job demonstration of the IH equipment needed in your operations. You'll be money ahead this year and in the years to come. Besides, you can always depend on prompt, efficient service and genuine replacement parts for your INTERNATIONALS. Wherever your job may be, an INTERNATIONAL Industrial Power Distributor is nearby to serve you on the job, in his completely equipped shop.

INTERNATIONAL HARVESTER COMPANY, CHICAGO 1, ILLINOIS



This map shows our growing network of toll roads in the eastern section of the nation with completed projects and those under construction shown in solid lines, and proposed turnpikes appearing in dotted lines.



### INTERNATIONAL INDUSTRIAL POWER

EVERY LOAD A PAYLOAD



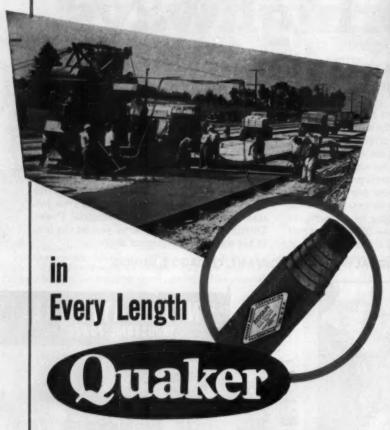
MAINE TURNPIKE EXTENSION. Here are five of the eight INTER-NATIONAL TD-24s used by Nello L. Teer Company, Durham, North Carolina, shown loading out the fill on one of the firm's prime contracts totaling 13.48 miles on the Maine Turnpike Extension.

NEW YORK THRUWAY. D.W. Winkelman Company, Inc., Syracuse, N. Y., uses INTERNATIONAL TD-24 to pull elevating loader that keeps eight haul trucks rolling with 400 cubic yards of fill hourly on New York Thruway approach roads.



PENNSYLVANIA TURNPIKE EXTENSION. J. D. Morrissey, Inc., Philadelphia, uses seven INTERNATIONAL TD-24s, two INTERNA-TIONAL TD-18As on \$5,385,313 prime contract for 71/2 miles of the Delaware River extension of the Pennsylvania Turnpike.





### REDSKIN WATER HOSE

Long service under the toughest job conditions! Quaker Redskin hose is specifically made to give you that. Non-porous tube is highly resistant to hot and cold water, mild acids, alkalies. Uniform diameter assures full unrestricted flow. Enclosed in rugged cover, resistant to weather and abrasion. Multiple ply fabric reinforcement specially frictioned for added safety. Exceptionally flexible for easy handling. Available in 50' lengths for pressures up to 225 lbs. Make light work of heavy-duty jobs with Redskin-another Quaker quality product for more savings through superior service.

Write for free folder and name of nearest distributor.



Belting, Hose, Packing and Moulded Rubber of every construction for every need.

QUAKER RUBBER CORPORATION

DIVISION OF H. K. PORTER COMPANY, INC. OF PITTSBURGH

> PHILADELPHIA 24, PA. **Branches in Principal Cities**

JOB TALK . . . Continued from page 10



trials through field tests to find the one giving best service. An ag-glomerated flux containing alloy materials has been used with a mild steel electrode wire. Another material is a medium carbon (.50) electrode in combination with a neutral mild steel flux.

McCarthy Improvement Co. has tested many of these rebuilt rails in the field without finding indications of damage to hardened bolts, pins or bushings. Welding heat seems to shrink pins slightly but pins and bushings generally are worn enough for replacement when rails are renewed.

### Other Savings . . .

A two-coat hardfacing for hammers on a 300-ton hammermilltype rock crusher produces a hammer that wears much longer. The mill has 12 hammers, each 10x6 in. Worn surfaces first are coated with stainless steel applied with a manual hidden-arc welder to increase the bond with the succeeding coat of manganese. Semi-automatic equipment is used to lay both hardfacing coats. This is a good maintenance practice, because extra hammers can be prepared in advance and kept on hand.

The manual hidden-arc process also proved a real timesaver in the hardfacing of a main shaft from a big jaw crusher. The shaft is 12 in. in dia at one end and 14 in. at the other. Previous arc-welding methods occupied three welders for a total of 144 hr. The semi-automatic method machine does the job in one-third the time, getting the crusher back into service four days

This fine maintenance practice was reported to CM&E by Les Hansen, field engineer for the Lincoln Electric Co.

# YOU'LL SAVE MONEY!



### **FULL 10-TON CRANE CAPACITY**

Talk about success stories - you'll write a big one with the P&H Model 105. In fact, you can't afford to be without it. Use it on high-lift crane jobs - for all those smaller odd jobs . . . trenching, grubbing stumps and what have you. It's a cost cutter, ever ready to relieve your bigger machines for more profitable work.

No half-way compromise, the 105 is a complete P&H Truck Crane on a tailor-made P&H carrier . . . loaded with modern refinements that give you greater stability, bigger, faster production . . . and the lowest maintenance cost in the business.

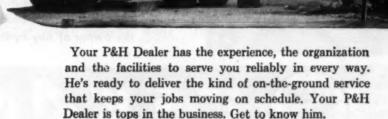
But there's even more to the P&H deal. Now you can buy this terrific producer at a price that makes real sense. Don't delay, check with your P&H dealer, but fast!

TRUCK CRANES

CORPORATION

MILWAUKEE 46, WISCONSIN

See your en dealer NOW!



the Pall Line













HOW'S THIS

# **Keep hydraulic systems** ALWAYS CLEAN AND RUST-FREE

### BEST WAY to keep your hydraulic equipment operating dependably and to prevent unscheduled stoppages is to make your hydraulic medium Texaco Regal Oil R&O - the oil that tests prove has more than ten times the oxidation resistance of ordinary TEXACO SIMPLIFIED LUBRICATION PLAN turbine-quality oils. Texaco Regal Oil R&O keeps hydraulic systems free from sludge, rust and foam -Only six Texaco Lubricants needed to handle assures top efficiency and low maintenance costs.

all major lubrication. The Plan reduces lubri-Good evidence of this comes from a manufacturer cant inventory, helps assure proper appli-(name on request) of hydraulic equipment used in cation, reduces costs. Ask a Texaco Lubricathe operation of bulldozers and tractors. He says: tion Engineer for details

". . . the owner of any hydraulic equipment

### TUNE IN:

TEXACO STAR THEATER starring JIMMY DURANTE or DONALD O'CONNOR, on TV Saturday nights. METROPOLITAN OPERA radio broadcasts Saturday afternoons.





should use a rust- and oxidation-inhibited oil ... I have yet to see one of our units in which Texaco Regal Oil R&O has been used that wasn't clean, free from rust and sludge — with pump parts, piping, controls all in A-1 condition."

There is a complete line of Texaco Regal Oils R & O. Thus, whatever the type or size of your hydraulic equipment... whatever the range of temperatures or other operating conditions... there is a Texaco Regal Oil R & O to assure most efficient performance.

IN AIR COMPRESSORS, TOO, Texaco Regal Oil R&O

assures better lubrication, better performance. It keeps compressors and lines clean, free from harmful deposits and rust — keeps valves clean and piston rings free for top-efficiency performance.

Texaco Regal Oil R&O is one of the six outstanding products that, under the Texaco Simplified Lubrication Plan, will handle all your major lubrication. A Texaco Lubrication Engineer will gladly give you full information. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

### Lubricants and Fuels

FOR ALL CONTRACTORS' EQUIPMENT

# It's Your Business · ·

### "Pay As You Depreciate"

CONTRACTORS can now take advantage of another plan to pay off new equipment at nearly the same rate

as you depreciate it.

The new financing plan, offered by C. I. T. Corp., tailors payments to the fastest depreciation schedule allowed by the new tax law: the "sum of the digits" method (which figures annual depreciation on a machine with a six-year useful life, for example, by adding the digits 1, 2, 3, 4, 5, 6 for a total of 21. Depreciation allowed in the first year would then be 6/21; in the second year, 5/21; and so on until in the sixth year you would depreciate only 1/21 of the original cost.)

Using this method of depreciating equipment, the contractor can write off in only three years 71% of the total original cost. Payments to C.I.T. over this period will actually run somewhat higher than the depreciated cost, because the plan requires the contractor to make an initial down payment. C.I.T. then applies the "sum-of-the-digits" repayment schedule to the unpaid balance (including the financing charge.)

Terms of this financing plan run up to six years, depending on the useful life of the equipment. The interest charge amounts to 4½% per year on the original unpaid balance.

Highway Prices Reverse Downtrend, Climb 9-10% in Two States

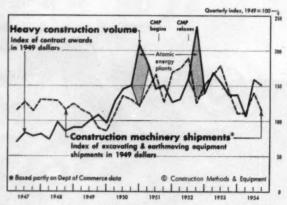
A new uptrend in highway bid prices may be in the making. Third-quarter bid prices are up substantially from the second quarter lows in California and Colorado. Furthermore, while the U. S. Composite Mile Index continued to decline during the third quarter, its excavation and pavement components turned upward.

Highway prices in California climbed by 9.9% during the third quarter, according to the California Division of Highways. In Colorado, the State Highway Department reports a corresponding 8.9% rise. These increases followed sharp declines in both the first and second quarters of this year.

Prices in both states are still below about 15.5%, their respective highs in 1951-52. Compared with a year ago, California highway bids are down 4.7%, and in Colorado prices are 3.4% below the 1953 annual average.

In contrast to the trend in these western states, the U. S. Composite Mile Price Index continued to decline during the third quarter of '54. The new index is 1.3% below the second quarter, according to the Bureau of Public Roads. This decline puts the index 5.4% below last year and 10% under the all-time high in the first quarter of '53.

There are signs that the U. S. Composite may also be due for a reversal of its 12-month decline. Two of the three sub-indexes which make up the total index,



THIRD-QUARTER SHIPMENTS of construction machinery declined seasonally, but the drop was less than in the previous years 1951-53. Shipments continued lower than a year ago with the CM&E index off 16% below the record high in the third quarter of '53 and 7-10% under the corresponding quarter of '50, '51, and '52. For the first nine months of '54, the actual dollar value of shipments is \$0.5 billion, off 22% from the record value in '53. Shipments are falling behind the stronger trend in contract awards. During the second and third quarters the contract volume index was 8% higher than '53 compared to a 19% decline in equipment shipments.

common excavation and structures, reversed their downtrends by rising slightly in the third quarter. But these increases were more than offset by a 2.8% drop in concrete pavement bid prices.

### Strong, Steady Flow of Proposed Work Swells Backlog to \$78-Billion High

New proposed heavy construction projects have been piling into the backlog at a consistently fast pace during every month so far in '54. The total estimated cost of this work is nearly \$13 billion and tops the volume proposed during the same period of '53 by 1%.

As of October 31, the heavy construction backlog was \$78 billion, highest on record. This doesn't include the \$1.1 billion in state and local public works for which bond sales were approved at the November 2nd election and which will be added to the backlog.

There's been a sharp rise in the volume of new federal construction jobs proposed during the three months August through October. Together, these projects have a total estimated cost of \$661 million, which is more than 2½ times the dollar value of federal public works proposed during the seven months, January-July. So far this year, more federal work has gone into the backlog than in all 12 months of '53.

The flow of new state and local public works into the backlog is running about even with last year in the first 10 months. And, thanks to a surge in new housing projects, private proposed work is running slightly ahead of last year. (Continued on page 22)

### FINISH THE JOB WITH USED EQUIPMENT-YOU CAN RELY ON A "BONDED BUY"

Only from your CATERPILLAR DEALER—
a \$10,000 guarantee on "Bonded Buy"
used Caterpillar-built equipment.
Other big values, too!











Do you need extra equipment to meet a contract or complete a job before the weather closes in? You'll find what you want, cost-wise and work-wise, at your Caterpillar Dealer, headquarters for the best buys in new and used units — tractors, engines, motor graders, scrapers and other earthmoving equipment!

For three-way value in used machines, you can't beat "Bonded Buy"! You get value at the time of the purchase, big-production value on the job and value at trade-in time. Only your Caterpillar Dealer offers you "Bonded Buy" on used Caterpillar-built units with a guarantee backed by a bond of \$10,000, issued by The Travelers Indemnity Company. He also offers you your choice of two other value classifications—"Certified Buy" and "Buy and Try" on used equipment of any make, honestly labeled and backed in writing!

Why gamble on used equipment when you can buy with assurance from your Caterpillar Dealer. Take a look through his lot today — see the values he has for you in his used equipment line-up!

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

### CATERPILLAR



### YOU KNOW WHAT YOU'RE BUYING FROM YOUR CATERPILLAR DEALER

Your Caterpillar Dealer offers three classes of used equipment, and backs each one in writing. You buy with confidence, sure that the equipment is honestly described.

- (1) "SONDED SUY." Only the best in used Caterpillar Diesel Tractors, Engines, Motor Graders and Earthmoving Equipment. Each "BONDED BUY" machine is backed by a Dealer's Guarantee Bond equal to the purchase price of the unit up to a maximum of \$10,000. This provides a guarantee for thirty days against unsatisfactory performance due to defective parts. If a part should prove defective within the guarantee period under the normal conditions of your joh and with proper maintenance, your dealer will put your unit back into operating condition with no charge to you for parts and labor up to the amount of the bond. The Dealer's Guarantee Bond is backed by The Travelers Indemnity Company. Your Caterpillar Dealer gives you this protection with your purchase of a "BONDED BUY" unit. Look for the "BONDED BUY" symbol—it's your assurance of the best in used machines.
- (2) "CERTIFIED BUY." "Certified Buy" covers units of any make in good condition. Your performance guarantee is in writing backed by your Caterpillar Dealer.
- (2) "BUY AND TRY." Bargains in used machines of any make. Buy and try them for a period mutually agreed upon by you and your dealer. Each "Buy and Try" unit carries his written "money-back" agreement.

"BONDED BUY" assurance effective in the United States and Canada

Copyright 1954, Caterpillar Tractor Co.

GENTLE	CATERPHLAR TRACTOR CO., Pepris, Illinois, U.S.A. GENTLEMEN: Send me, without obligation, more information on "Bonded Buy."						
Name_	Name						
Street A	Street Address						
Cliv		Zone No.	State				



## UNIT provides ample power maneuvers easily

Here is the ideal crane for placing pipe exactly where you want it... and placing it FAST. This sturdy, dependable machine provides easy maneuverability, plus precision-steadiness. The safety-promoting FULL VISION CAB gives the operator an unobstructed view of the entire operation, at all times. Makes pipe-positioning more efficient, safer, more profitable to all concerned. On other jobs, too, UNIT is equally satisfactory. It will pay you to investigate.

UNIT Models are available in ½ or ¾ yard Excavators... Cranes up to 20 tons capacity... Crawler or Mobile type... Gasoline or Diesel. All models convertible to all attachments.



Page 22 — Construction METHODS and Equipment — December 1954

IT'S YOUR BUSINESS .
Continued from page 20

### Construction Put in Place to Break All Records in '55

The U. S. Departments of Commerce and Labor have jointly come up with a rosy forecast of construction put in place during 1955. They see a 6.8% rise over this year to a new high of \$39.5 billion. At the same time, they upped their original forecast for '54 from \$36 to \$37 billion, the biggest year yet in dollar volume.

New record highs in dollar volume of private housing, commercial building, highways, waterworks, and sewerage, electric light and power, public schools—all are expected to help push the '55 total to the highest point in history.

### Public Works up 5.4%

Highway construction put in place is estimated at 4.2 billion, 18.3% more than record in '54. Public schools are headed for a 16% increase over '54 to \$2.4 billion. Sewers and waterworks are expected to top \$1 billion for a 7.7% gain over '54.

Although they won't set any new highs, military construction has a 17.6% rise forecast for '55 to \$1.1 billion, while public hospital and institutional building should climb 14.3% to \$0.4 billion.

On the down side will be public housing, 26.5%; industrial (mainly atomic energy plants) 33.1%; and conservation and development (primarily dams, river and harbor development) with a moderate 6.3% decrease.

### Private Construction to Rise 7.3%

Sparked by a 13.3% jump in new private housing to a record \$13.5 billion, private work put in place in '55 is forecast to hit a new high of \$27.4 billion. Commercial building should be up 6.7% to \$2.3 billion.

The decline in industrial building is expected to taper off to 7.5% with a total of \$1.9 billion in '55. Public utilities have a 0.6% increase because of moderate gains in gas and electric light and power.

Of course, part of the record dollar volume of new construction put-in-place forecast for next year represents jobs actually let in '54, or even earlier. This makes it impossible for contractors to gage from the figures the volume of new

(Continued on page 28)



### the dirt flies faster-now with MUSCLES OF STEEL

Straining laborers plying pick and shovel are a bygone memory because of today's excavating and road-building equipment. Modern power shovels and draglines use muscles of steel-rugged wire rope-to keep the dirt flying fast.

Helping to clear the way for needed highways is another of the important ways in which Wickwire Rope contributes muscle to America's might.

You'll find Wickwire Rope, too, in the mines and the quarries . . . in the oil fields and logging camps . . . with the fishing fleets...and in numerous materials handling operations. Whatever the job may be, the extra care and quality fabrication that goes into Wickwire Rope proves itself in longer life, more economical service and utmost reliability.

every industry benefits from wire rope

THE COLORADO FUEL AND IRON CORPORATION—Abilieve (Tex.) • Denver • Neusien • Odesse (Tex.) • Ph PACIFIC COAST DIVISION—Les Angeles • Oakland • Pertiend • San Francisco • Sentie MICKWIRE SPENCER STEEL DIVISION—Boston • Bullelo • Chattanioga • Chicago • Detreit • Emioaten (Pa.) • Neu

2533

On VEPCO'S Roanoke Rapids, N. C.

it's SHELL.

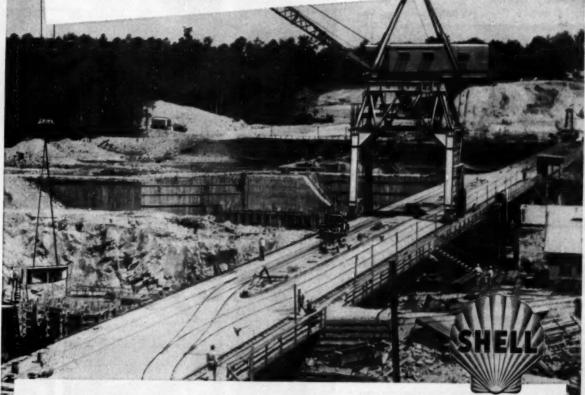


Page 24 — Construction METHODS and Equipment — December 1954

# Hydroelectric project . . .

Gasoline
Fuel Oil
Diesel Fuel
Kerosene
Industrial
Lubricants

Solvents
Motor Oils
Anti-Freeze
Greases
Outboard
Motor Oil



The Roanoke Rapids Project for the Virginia Electric and Power Company, being constructed by Stone & Webster Engineering Corporation, is going full speed ahead. This extensive job keeps hundreds of pieces of heavy construction equipment busy, day and night. Nearly 100% of this equipment relies on Shell Industrial Lubricants and Fuels to meet the rigorous operating conditions.

When completed, Roznoke Rapids project will supply 100,000 kilowatts of electricity for Vepco's system.

Widely used in construction work and wherever heavy duty equipment operates, Shell lubricants protect machinery and at the same time keep maintenance costs at rock bottom. Perhaps it will pay you to look into the savings of a 100% Shell program.

### SHELL OIL COMPANY

50 WEST 50TH STREET, NEW YORK 20, N. Y. 100 BUSH STREET, SAN FRANCISCO 6, CALIF.

\*A diligent search could uncover only one piece of Vepco's equipment NOT using a Shell product.

# 21-SECOND batch time

21-SECOND speeds airport and highway paving . .

Johnson Automatic Batch Plants, like the one shown here, accurately weigh out aggregates and cement ahead of heaviest paving schedules on highways, airports, and other large-volume concrete jobs. For example:

Keeps two 34-E pavers busy... One plant, with one batcher operator, easily supplies enough materials to keep two 34-E pavers busy full time. A 1½-cu. yd. batch is weighed up, and discharged into truck, in as little as 21 seconds. One-stop charging of batch trucks speeds production. (Plant also can be arranged for two-stop charging.)

Automatic control maintains high plant output all day . . . assures pin-point weighing accuracy of every batch. A separate, fully-automatic weigh-batcher is used for each of the aggregates, and for the cement. All materials weigh up at the same time for greatest speed. These single-material Johnson batchers operate on electro-pneumatic control . . . fill valves and discharge gates are automatic air-ram operated.

Multiple batch selections . . . For road-builder's use, dial scale with electric cut-off switch is usually used. When more than one batch size is required, single material batchers can be equipped with mix selector for 12 different mixes . . . all controlled from central operator's station. (Each of the single-material aggregate batchers can be equipped with a moisture compensating lever which automatically gives a dry weight of material being weighed.) Up to 120 mix selections are available on large Johnson batch plants for dams, and commercial ready-mix installations.

Investigate the possibilities of Increasing concrete production on your operations with one of these Johnson Automatic Batch Plants. In many instances this equipment can be added to an existing plant. For complete details, contact your Johnson distributor, or write to us.

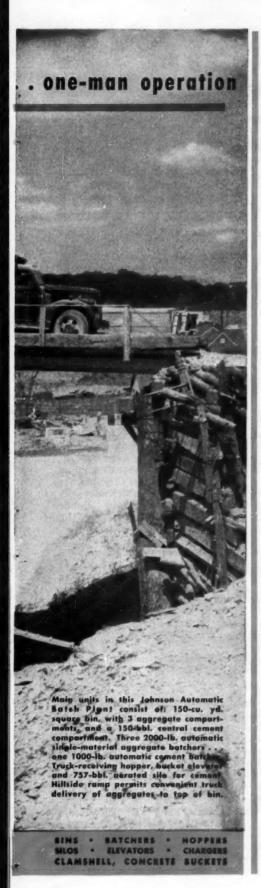
C. S. JOHNSON COMPANY

CHAMPAIGN, ILL

(Koehring Subsidiary)



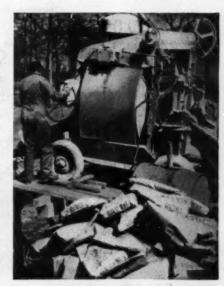
JOHNSON automatic BATCH PLANTS



### New features on Kwik-Mix 16-S Dandie®

Latest 16-S Dandie concrete mixer, interchangeable side or end discharge, has adjustable double-contact skip shaker, automatic water system, 3-point suspension mounting on heavy coil springs, cast steel drum heads with machined roller paths. Also, exclusive remixing action, and 8-second discharge with tilted Flow-Line Chute. Other models: 3½-S, 6-S, 11-S... bituminous, plaster-mortar mixers, power wheelbarrows.

KWIK-MIX • Milwaukee, Wis. (Keehring Subsidiary)



### 14½-ft. per-min. Parsons Trenchmobile®

Rubber-tired Trenchmobile drives job-to-job at 12.6 m.p.h. . . . digs 8 to 16 in. wide, 5 ft. deep, up to 14½ ft. per min. Sloping ladder boom makes vertical set-ins, undercuts sidewalks, curbs, old mains. Other features: hinged crumber, "Tap-In" digging teeth, reversible conveyor, optional backfill blade. Also ask your Parsons distributor about the 2 wheel-type and 3 ladder-type Trenchliners® . . . all full crawler mounted.

PARSONS Co. • Newton, Iowa (Koehring Subsidiary)



### More work-time with Koehring Dumptor®

With more than a ton of strength for every ton of payload capacity, Koehring 6-yard Dumptor withstands severest loading shocks. Sides, end and double-strength bottom are heavily rib-reinforced. Stationary or free-swinging kick-out pan adds another ½" steel plate to heavy-duty bottom. Gravity dump eliminates body hoist maintenance. 1-second dumping speeds haul cycles. Also check Dumptor fast no-turn shuttle hauling.

KOEHRING Company Milwaukee 16, Wis.



Maximum safety with minimum delay must be provided for highway users by the contractor when he arranges a temporary traffic route during highway construction. Well-placed, legible signs and barricades effectively control today's fast driver.

# How to Protect the Traveling Public When Constructing Roads

DETOUR — Signs slow down and reroute drivers on approach to closed section

"ROAD CLOSED—BEGIN TEMPORARY ROUTE." When the highway contractor erects these signs, he creates a double obligation: that of protecting highway users against accidents and undue delays and his own organisation against possible damage

### Make It Easy for Them

e Careful planning and execution of a few important details will do the job right and take a big load off the contractor's mind. First, he plans every step of the way so that no operator of a vehicle becomes confused as he approaches the detour or while traveling over the temporary route. As long as the driver knows definitely what to do next in plenty of time, he seldom gets into trouble—or causes the contractor any inconvenience through damage claims.

Make every effort to inform, guide and protect the traveling public by the use of distinctive signs, easily understood control devices and barricades properly placed and marked. Each end of a section of road to be closed to traffic should be marked, lighted and posted with detour information that catches the eye and gets the driver to react safely.

### The Approaches

• Warn the driver to slow down far in advance of the closed roadway section and to expect a change in route. The first traffic-control sign he meets should convey basic information in a few words, such as the double sign above which tells the driver to slow down to 10 mph and turn to a new route within 800 ft. This sign must be specific concerning what he has to do for his anfety. Within the next 200 ft he comes to a second sign which states simply "Barricade Ahead". There can be no mistaking the meaning of the first two measages.

• Post a directional arrow and temporary route guide sign within 75 ft of the point of route change, clearly indicating the turn. If vehicle operators have to be advised of special road conditions, clearances and bridge capacities on the detour, be sure to post such information plainly along each approach.

### The Signs

• Best warning signs are at least the standard 24x24-in. minimum in size mounted more than 30 in. above the crown of the road and 6 ft off the travelled lane. They should carry a black legend on a reflectorized yellow background and be mounted securely on sturdy posts.

• Purpose of barricades is to exclude all through traffic. They are the final control device before the motorist turns to the temporary route. Barricades are erected entirely across the travelled way, striped diagonally in contrasting colors, with the lighter color reflectorized. Broad rails should be used in the construction of substantial road blocks. A reflectorized "Road Closed" sign mounted on the barrier completes traffic control on the approach.

### The Delou

The temporary route must:

- Completely bypass the closed highway section.
- Possess capacity to absorb and accommodate the majority of diverted traffic.
- Provide access to residences, business districts and other centers of public activity.
- Be clearly posted as a detour, together with route numbers, speed limits and warnings of hazards such as crossroads, clearances and bridge capacities.
- Be patrolled for necessary enforcement of regulations and be maintained regularly for surface irregularities, lighting and legibility of signs.

This article is the first in a Public Safety Series designed to reduce damage claims. If you would like a copy of this complete series, write to Less Prevention Department, Liberty Mutual Insurance Company, 175 Berkeley St., Boston 17, Mass.

### IT'S YOUR BUSINESS . . .

Continued from page 22

work (particularly heavy construction) which will be up for contract in '55.

Our preliminary estimate for '55 heavy construction awards is \$15.2 billion, up 6% over '54) (CM&E Oct. '54, page 24).

### SOME BIG CONTRACT AWARDS OF THE MONTH

Winn-Rau and Winn-Senter Construction Co., 430 Railway Exchange Bldg., Kansas City 6, Mo. 2,000 homes on 530-acre development at Kansas City, Kan. for Minnesota Ave. Inc. c/o J. W. Perry, 1401 Fairfax Rd., Kansas City, Kan. \$30,000,000.

Standard Construction Co. 1010 Vermont Ave. N.W., Washington, D. C. Hospital center on U.S. Soldiers Home grounds, Washington, for General Service Administration, General Service Bldg., 19th & F Sts. N.W., Washington 25, D. C. \$15,790,000.

Del Webb Construction Co, South 23rd Ave., Phoenix, Ariz. Enlarging former Blues baseball stadium for Athletics, Kansas City, Mo. for the City, c/o Reed McKinley, director, Department of Public Works, City Hall, Kansas City, Mo. \$2,775,000.

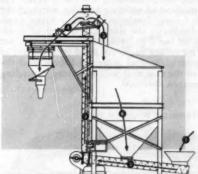
Western Contracting Corp., 400 Benson Bldg., Sioux City, Iowa. 141 mi of paving of Indiana-East West Toll Road in Elkhart and LaGrange counties for Indiana Toll Road Commission, 309 W. Washington St., Old Trails Bldg., Indianapolis 4, Ind. \$6.898.588.

Mt. Vernon Contracting Corp. and S. A. Healy Co., 439 N. Terrace Ave, Mt. Vernon, N. Y. Major Deegan Expressway extension, Bronx County, for the New York Bureau of Contracts and Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. \$2,787,448.

Bethlehem Steel Co., Inc., 1305 Mercantile Trust Bldg., Baltimore 3, Md. Superstructure for Rappahannock River Bridge, Greys Point, Lancaster and Middlesex counties for the Virginia State Highway Dept., 1221 E. Broad St., Richmond, Va. \$7,948,106.

(More big jobs on page 144)





Bulk cement is delivered at track site or from truck at ground level. Feeder screw delivers to WeighMeister's vertical screw. High-capacity vertical screw lifts cement to precision batcher, which dumps either automatically or at operator's control. When pre-set weight is reached, flow automatically shifts to storage bin. Setween bulk deliveries, cement flows by gravity from storage bin to feeder screw. Controls can be set to stop feeder and vertical screws automatically, if desired, when weight is reached.

Delivery and batching are completely independent, go on simultaneously without interfering with each other. WeighMeister may be used without bin at track site for batching or transfer plant.

WeighMeister gets its capacity from the fast-working screw lift. The precision-fed batcher and automatic electro-pneumatic controls give it dependable accuracy for constantly uniform mixes. One man operates the WeighMeister by three push-buttons, with no manual levers to waste time and cause error. Low bin cuts height in half, saves on weight and initial cost. The WeighMeister is totally self-contained with its own compressor for the automatic controls and its own electric motor or gas engine. All air and electric lines are permanent; no connections to waste time in moving. Makes light, compact, integral unit easy to set on single truck. Needs no footings or ramps. Just set WeighMeister on any firm, level spot-have it running in a short time. See your distributor or write for details. L. Burmeister Co., 4541 W. Mitchell St., Milwaukee, Wis.





Blaw-Knex telescopic combined sidewall and arch forms (shown above) and telescopic ceiling forms were used on this West Virginia Turnpike Tunnel, Sidewall forms are provided with scering wires.

BLAW-KNOX STEEL FORMS with built-in scoring wire eliminate one costly step in concrete construction.

When a concreting job calls for scored walls to provide better bonding for tile overlay, the simple method of welding scoring wires to the sidewall forms, developed by Blaw-Knox engineers, eliminates the once costly step of sand-blasting or hand chipping. After the pours are set, the forms are easily stripped with the aid of a screw jack integral with the forms, and the surface of the cast wall will be scored according to the pattern specified.

CONSULT Blaw-Knox in the preliminary planning stage of your
job for ways to cut concreting costs. Blaw-Knox engineers, backed by over
40 years' experience as the original and most prominent steel
form manufacturer, specialize in helping you plan for the simplified forming
methods that often reduce the number of necessary operations,
save time and materials and keep costs low.



### "Our Hose Line Replacement Program

is 100% Aeroquip'

reports J. L. Scotti, owner of J. L. Scotti Construction Co., Middletown, Connecticut



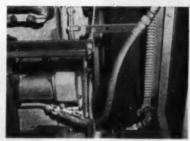
"We couldn't keep hose on some of our units," says Mr. Scotti, "but since changing to Aeroquip we don't have leaks and blowouts, saving expensive breakdowns. Our hose line replacement program is 100% Aeroquip."

Cut costs and down time on your equipment by replacing hose lines the Aeroquip way . . . make your own hose lines in minutes from a small inventory of bulk hose and detachable, reusable fittings. See your distributor or write us

It takes only a few minutes for one of Scotti's mechanics to make and install an Aeroquip replacement line.







This Aeroquip medium pressure oil cooler line on one of Scotti's backhoes withstands continuous vibration.



AEROQUIP CORPORATION, JACKSON, MICHIGAN

LOCAL REPRESENTATIVES IN PRINCIPAL CITIES IN U.S.A. AND ABROAD . AEROQUIP PRODUCTS ARE FULLY PROTECTED BY PATENTS IN U.S.A. AND ABROAD

December 1954 — Construction METHODS and Equipment — Page 31

## BRIDGING A GAP in the Port Arthur Freeway

Working west of Wallisville, Texas, this crane fleet of Elmer C. Gardner, Inc., Houston, is completing the substructure for the new \$1½ million Trinity River Bridge on the Port Arthur Freeway. The fleet is rigged with Yellow Strand Wire Rope for trouble-free service.

### ELMER C. GARDNER, INC., SPEEDS TRINITY RIVER BRIDGE CONSTRUCTION

The rapid growth of the Houston, Texas, area has forced an emergency road-and-highway program to meet needs of industry and citizens. Several state plans for years ahead are being put to work immediately.

One phase of these hurried plans is a modern freeway to carry the traffic load between Houston and Port Arthur. Preliminary contracts for many of the road's sections have already been let.

Elmer C. Gardner, Inc., Houston contractors, won the contract for the bridge to span the Trinity River. The work has a 2-year completion date, but the company is speeding the work and expects to beat the date by a wide margin.

The 4-lane bridge is a modern, reinforced concrete structure 3,000 feet long. The span arches to a height of 75 feet above the water to allow use of the navigable river. Cost of the bridge will be approximately \$1½ million.

The Gardner company is presently working on the substructure of the bridge. Seven cranes, a pile driver, winches, earthmoving equipment and men are working steadily to speed the construction. And to keep the machines working steadily, Elmer C. Gardner, Inc., uses Yellow Strand Wire Rope from the B & B Houston factory.

For three years, while the company was building the San Jacinto Dam, LaPorte Road, Houston Disposal Plant and other major works, Yellow Strand Wire Rope was used on vital equipment.

Dave Shipley, Supt. on the Trinity Bridge project, says this, "We use Yellow Strand because it's just good rope. It's given us *good* service on every job and our distributor service is outstanding!"



# LORAINS ON JOB.

THE NEW YORK THRUWAY

If this isn't more excavators than any other manufacturer has on this tremendous project, it certainly is close enough to prove that Larains have those built-in qualities that big, successful contractors demand in their equipment. These same qualities are designed to make money for you whatever the size of your operation, because there is a size and type Lorain for any job. There are over 136 to choose from — with features only Lorain can provide. See your Thew-Lorain Distributor for the full story.

MORAUER & HARTZELL, INC., Washington, D. C., has purchased 7 Lorains. Shown are 2 of their Lorains on their 2½-mile Thruway sub-contract, which consists of moving 500,000 yds. in 5 months, including cuts ½ mile long and up to 145 ft. deep.



SAVIN CONSTRUCTION CO., East Hartford, Conn., bas purchased 46 Lorains. Their \$27 million Thruway contract covers 27 miles. At left, is a 2-yd. Lorain 820-K "Special," equipped with a 26-ft. shovel boom, loading borrow at the rate of 200 yds. per hour. Right, another 820-K "Special," with clamshell bucket on a 70-ft. boom, feeds a batching plant.





A. J. ORLANDO CONTRACT-ING CO., Whitestone, L. I., N. Y., has a sub-contract for grading and is using these two Lorains to move a total of 6400 yds. every 8 to 10 bours. At left, is a 2-yd. 820-K "Special" which has moved as much as 370 yds. per bour in a mixture of dirt and rock. At right, another 2-yd. Lorain 820-K works nearby.



NEW YORK THRUWAY FACTS . 427 miles long—will cost \$555 million—over 80 million cu. yds. of excavation and fill—525 bridge structures—9 million barrels of cement. 4 million yards of stane. 2 million yards of sand needed for concrete.

THE THEW SHOVEL CO. LORAIN, OHIO

LORAIN

# NYLON CORD TRUCK TIRES GIVE

### -as proved by truckers' actual road experience



MORE RECAPS. "We recap our nylon cord tires at least twice," says H. D. Ayers, Ayers & Maddux, trucking firm, Phoenix, Ariz. "We're lucky to get 50% recaps with ordinary tires."



MORE MILEAGE. "We get 50% greater wear from nylon cords than from any other tire—they consistently save us money," says Carl Lizza, Lizza Bros., of Oyster Bay, L. I.



FEWER ROAD DELAYS. "Nylon cords have cut our road delays 25%," reports John Staffen, trucker of Tonawanda, N. Y. "They've cut our tire cost per mile nearly that much, too."

Du Pont and leading tire manufacturers put their skills together and perfected nylon cord tires after ten years' research and testing. Now truckers all over the country are reporting that nylon cords give more mileage, more recaps and fewer road delays. The result: much lower cost per mile.

Nylon has greater tensile strength, flex and abrasion resistance than any other fiber used in cords. Nylon cords absorb road shock and protect against bruise damage better than any other cords. Nylon cords take hottest road temperatures in stride, and they run cooler. Moisture seeping through cuts doesn't rot nylon.

Prove to yourself that nylon cord truck tires give substantially lower cost per mile. Ask your dealer about a set of nylon cord truck tires. (Du Pont makes nylon fibers, does not produce tires.)



BETTER THINGS FOR BETTER LIVING ... THROUGH CHEMISTRY

# LOWER COST PER MILE



TIRE COSTS CUT 32%—that was the experience with nylon cords of Rocky Mountain Service, truckers, St. George, Utah. Nylon cord tire (left) ran 297,000 miles, reports company president Norman Gubler, has just had fourth recap. The ordinary truck tire (right) is ready to be junked after traveling only 151,000 miles.

# The SYMBOL of QUALITY for More than Half a Century

# SMITH COMILWAUKEEUS

Ready-Mix Operators, Everywhere!

When you think of concrete mixers you naturally think of SMITH. The name SMITH is held in high esteem throughout the construction industry, because SMITH has always produced the finest and most dependable concrete mixers that money can buy. Every SMITH Mixer is backed by more than 52 years of specialized engineering and manufacturing experience. And every machine is thoroughly job-tested. The familiar SMITH trademark, found on every SMITH Mixer, is therefore a symbol of quality and dependability. The next time you need stationary mixers, truck mixers or agitators, remember you can buy SMITH Mixers with confidence.

The T. L. SMITH COMPANY, 2851 N. 32nd St., Milwaukee 45, Wis., U. S. A. Affiliated with ESSICK MANUFACTURING CO., Los Angeles, Colif.

For BIGGER and BETTER Concrete Mixers... Look to SMITH!

## How DUKE POWER COMPANY





(A) LOADING UP this bulky load is a mean job. Here the transformer is moved onto the low-boys pulled by two husky White Model WC2864's, ready to go!



(B) ON ITS WAY, the huge transformer moves by White Mustang Power to the station ½ mile away. Plenty of Mustang Power here!



(C) MISSION COMPLETED, the rugged Whites stop at the end of the trip, turn the 300,000 lb. transformer over to the riggers.

PROBLEM: To move two 300,000 lb. transformers to a new station of the Duke Power Co., Spartanburg, S. C., not accessible by surfaced road or spur track.

**SOLUTION:** Two White Model WC2864 Tractors with low-boy trailers handled these big loads without delay or difficulty. Operating side-by-side, from siding to plant site, these rugged Whites had plenty of power... dependable all the way.

### FOR YOUR REALLY BIG MOVING JOBS...

See your White Representative for latest power equipment news as it pertains to your business. New White Trucks save time... cut costs... get more work done because they are exactly tailored to actual job needs. Call or write today for facts.

## THE WHITE MOTOR COMPANY Cleveland 1, Ohio



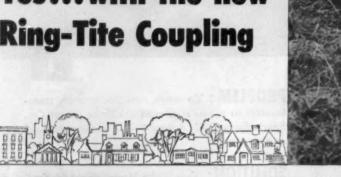
FOR MORE THAN 50 YEARS THE GREATEST NAME IN TRUCKS

# Question:

Can costs be cut on water-line installations?

Answer:

Yes...with the new **Ring-Tite Coupling** 









On this Utah job, snow, ice and difficult conditions caused no installation



In this Colifornia installation, flexible Ring-Tite joints permitted easy con-

#### **Speeds assembly of Transite Pressure Pipe**

In state after state, contractors are learning that Transite® Pressure Pipe and the new Ring-Tite® Coupling provide fast, sure pipe line assembly with tight, dependable joints . . . strength to assure lasting, trouble-free water mains through the years.

With Ring-Tite, installation costs less-assembly follows digger closely. Typical contractors' comments: "On entire job, trencher and backfiller seldom over 150 feet apart . . ." "Laid 6" Class 150 Ring-Tite at a rate of 5000 feet per 8 hours."

The design of the Ring-Tite Coupling permits quick, easy alignment. To assemble, rubber rings are simply popped into grooves. Then lubricated pipe ends slide in under rings smoothly, easily and surely.

Pipe ends stop positively-with ends

automatically separated within coupling. This separation gives the line flexibility to withstand shock and vibration, relieves line stresses, permits conformance to curves. Installations can be completed under adverse weather, temperature or terrain conditions. No complicated equipment is required.

Transite Pressure Pipe and the Ring-Tite Coupling are made of asbestos and cement. Strong and durable, they cannot rust; are highly resistant to corrosion. Tested to A.W.W.A. specifications.

For the new Ring-Tite folder TR. 142A-please write to Johns-Manville, Box 60, New York 16, N. Y.



(See us at Seattle-Booths 70-72 A.W.W.A. Convention)



## Johns-Manville TRANSITE PRESSURE PIPE

NOW WITH THE RING-TITE COUPLING

### Jaeger Spreaders, Finishers help set the Ohio Turnpike record

## 7280 ft. of 12 ft. slab in 13-hour day



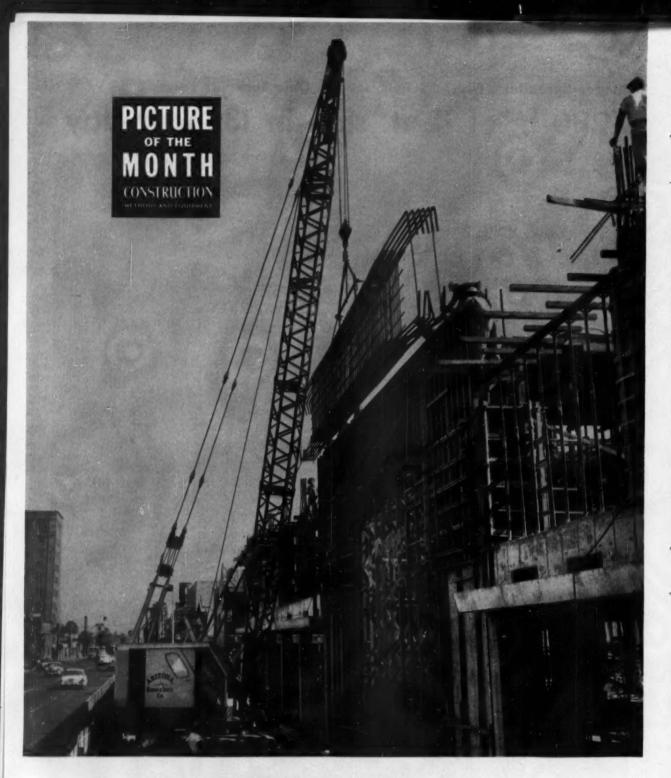
This Ohio Turnpike record, by V. N. Holderman & Sons, required perfect organization, scheduling and teamwork. Good equipment helped, too. On top course, for example, the oscillating screed of the Jaeger Spreader accurately metered the

concrete between paver and finishing machines. In addition, both Jaeger Finishers were equipped with rear screeds diagonally adjustable for any pitch or super-elevation of the slab. For more data, see your Jaeger dealer or ask for catalog.

#### THE JAEGER MACHINE COMPANY

800 Dublin Avenue, Columbus 16, Ohio

AIR COMPRESSORS . LOADERS . PUMPS . CONCRETE MIXERS . TRUCK MIXERS

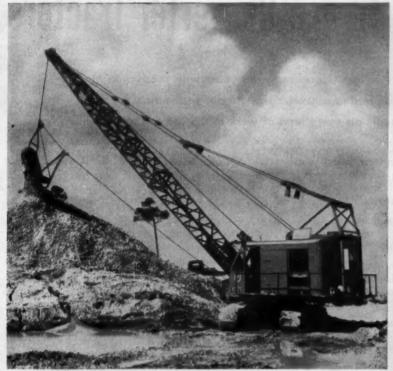


#### **Steel Frame Goes Over Entrance**

SEVEN-TON FRAME of reinforcing steel is eased across top of panel forms by a Bay City crane on way up from ground to position inside form for big concrete girder. Original specifications for the First National Bank building at Phoenix, Ariz., called for a structural steel beam to span the main entrance of the new nine-story building. Since

the other framework is reinforced concrete, Contractor James Stewart & Co., Inc., Dallas, decided on reinforced concrete for this spot also. The finished concrete beam measures 61 ft 8 in. long, 7 ft 10 in. deep and 24 in. wide. The reinforcing cage, of No. 11 bars, was fabricated easily on the ground, braced specially with some extra bars.

## **MORE CYCLES PER DAY**



AS A 1¾-YARD DRAGLINE. This fast swinging K-375 rig digs coral rock and sand in Florida. Speed-o-Matic control makes dig-swing-dump one fluid motion because operator has perfect "feel" of the load. There are no grabby clutches that produce lag and lost motion.



AS DEEP-DIGGING TRENCH HOE. This K-360 with 1¾-yard hoe makes full use of its 142 net hp, a natural for those deep, tough sewer jobs.



AS A HEAVY-DUTY 1 ¾-YARD SHOVEL. High strength components—precision machined—assure profitable, trouble free performance.

## K-300 series shovel-cranes with <u>Speed-o-Matic</u> control, 142 net hp, plus greater "live weight" can boost your output up to 25%

It's not only how much per bucket—but bow many buckets per day that piles up profits for shovel-crane owners. Smooth, instantaneous response of Speed-o-Matic power hydraulic control means faster, more productive cycles. Gives operator positive control for pinpoint accuracy and maximum safety. Cuts end-of-day fatigue too!

The 142 usable net hp gives you more digging or lifting power. And it has the built-in stamina

and "live weight" necessary to produce under continuous use of this extra horsepower.

Equally important, with full convertibility you have maximum use of your K-300 rigs for hundreds of 13/4-yard jobs. Ask your distributor, or write for K-300 series literature now.

LINK-BELT SPEEDER CORPORATION Codar Rapids, Iowa

BUILDERS OF A COMPLETE LINE OF CRAWLER, TRUCK AND WHEEL-MOUNTED SHOVEL-CRANES

LICKSELT SPEEDER

## The Facts Behind Allis-Chalmers Leadership in Torque Converter Tractors

Fourteen years of experience . . . eight years with production models . . . thousands of torque converter tractors out in the field . . . millions of operating hours on every kind of work in the construction business.

TODAY'S top contractors have given their "stamp of approval" to torque converter drive—as a key factor in the new standards of tractor performance they need for today's closely-bid jobs. Here's why—

Automatic Matching of speed and pull to load and terrain conditions . . . more dirt moved every hour, day in and day out.

Hydraulically cushioned protection for engine, clutch, transmission, rear end. The entire tractor lasts longer! That means less downtime, lower maintenance costs, more profit.

Operators love it! Allis-Chalmers torque converter tractors are so easy to handle (most shifting is eliminated) that operators do a top-notch job all day long.

Yes, the construction industry's most experienced men are demanding and buying torque converter tractors...and in this, Allis-Chalmers leads the way.

But, remember, you don't buy just one feature . . . you buy a *tractor*, with torque converter drive designed as a matched part of the entire machine. This advanced drive is only *one* of the many outstanding features that have switched so many leading contractors to Allis-Chalmers tractors. So . . .

## Check all these features before you buy!

All-Steel Box-A Main Frame with one-piece, rear-end housing gives improved weight distribution, soaks up

shocks, provides better equipment mounting, greater servicing ease . . . longer equipment life.

Service Simplicity of Unit Con-

Service Simplicity of Unit Construction — Power drive components can be easily removed, repaired or replaced without disturbing adjacent parts . . . saving time and money.

"Live" Sprocket Shofts — "Live" shafts with straddlemounted bearings permit small, more serviceable seals.

Double reduction final drives with smaller gears and shorter, heavier shafts mean extra ground clearance, better alignment, longer life.

1,000-Hour Lubrication — Tapered roller

bearings and positive seals on truck wheels, idlers, support rollers and final drives extend lubrication intervals, cut downtime.

Hydraulic Booster Steering — Gives operator small tractor maneuverability with new ease. In addition, self-energizing brakes which take hold with a firm, uniform grip, provide exact control and sure safety with less pedal pressure.

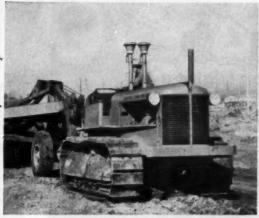
True-Dimension Track provides maximum ground contact... plus the right design, the best steels for every job condition... heat-treated for long life with the industry's newest, most complete facilities.



Oil-Enclosed Track Release Mechanism — Operates in oil, seals out dirt and moisture, always in working condition to provide positive protection.

See your nearby Allis-Chalmers dealer now for the full story. Whether you're interested in a big tractor like the HD-20 or HD-15...or the smaller HD-9 and HD-5, you can be sure of getting the most advanced tractor in the business, because Allis-Chalmers is the leadership line.

ALLIS-CHALMERS



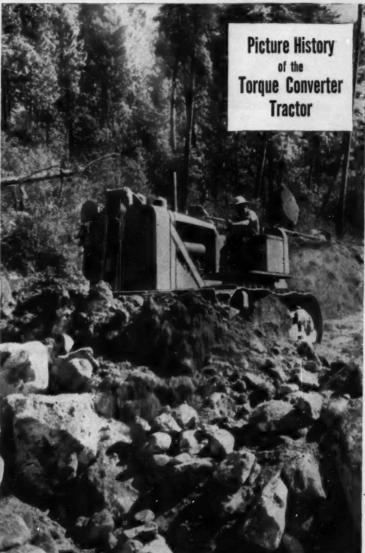
1940 THE FIRST tractor in the world with torque converter drive.



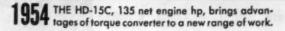
WORLD WAR II—The torque converter equipped M-4 military tractor, built by Allis-Chalmers.



1947 THE HD-19 proved the value of torque converter drive for big production.



1951 THE HD-20, 175 net engine hp, most productive tractor in the business.



## **Greater Economy...**



More Versatility in Street or Highway

## STAGE CONSTRUCTION with a SEAMAN MIXER



Low cost stabilization of native soils with the SEA-MAN Self-Propelled Mixer. STAGE 1. To improve a light traffic county or township road . . or to make streets in new subdivisions, the SEAMAN MIXER will mix and blend the native soils already in place. This achieves a uniform soil reaction to moisture and provides a smooth, weather-durable base. Construction costs and maintenance are low.



A "black earth" road stabilized at low cost by mixing in 0.5 gallons of oil per inch of depth with the SEAMAN MIXER.

STAGE 2. Next year? Or the next? As traffic grows heavier, scarify the old stabilized base and utilize your SEAMAN to mix in any suitable fluid or dry additive. The SEAMAN MIXER provides the most thorough, uniform distibution of binder and the highest densities after compaction.



A gravel highway with excellent load-bearing and weather resistant characteristics by correct assembly of materials with the SEAMAN MIXER. STAGE 3. Traffic flow and weight increasing? Now lay gravel or crushed stone on the Stage 2 suface and mix it with the PULVI-MIXER.

Thus you take advantage of the thickness of the previously stabilized base — moreover, with the SEAMAN you correct segregation in the new aggregate by blending the coarse and fines, interlocking and mortaring-in the stone in the most efficient assembly of those materials.



High type of gravel-asphalt stabilized for a city street. SEAMAN TRAV-L-PLANT is mixing, blending and properly assembling materials for maximum density. STAGE 4. When traffic volume demands, scarification of the gravel-stabilized course and re-mixing with bituminous binder or cement provides the community with a high type of heavy duty, low upkeep pavement. And it is achieved at a minimum of cost because you have re-used the aggregate already in place.

Properly assembled materials resist wear by traffic. Only the SEAMAN MIXER properly mixes, blends and assembles the coarse and the fines to build a base which is highly durable, resistant to penetration and break-up from frost. And only with the SEAMAN can you accomplish this within the limits of the most modest budget.

The principle of SEAMAN mixing, togather with a complete description of the SEAMAN MIXERS is shown in this recently issued Bulletin. Many job scenes illustrate the text. Write for Bulletin TPS.

280 NORTH 25TH ST., MILWAUKEE, WISCONSIN



SEAMAN MOJORS

17:e SEAMAN TRAV-L-PLANT 7 ft. mixing width, gasoline or diesel powered. Equipped with pump, tachometer controls, volumetric meter and spray bar for admixture of bituminous materials or water.







# New **BOSCH** Builder's Hammer with power rotation... weighs only 21 lbs.

Here's a new electric hammer . . . imported from Germany and sold exclusively by Homelite . . . that will speed work and cut your costs. Weighing only 21 pounds . . . much lighter than other hammers . . . this compact, rugged tool will smash, cut, chisel, channel and drill through concrete, brickwork or stone fast. What's more, with its unique power rotation feature it needs no hand crank drive for drilling. That's right! It's both an impact and rotating tool. Easy to operate . . . even in close quarters . . . this low cost hammer is available with either high cycle or standard universal drive. Operation is by normal power or by power from a Homelite Dual Purpose Gasoline Engine Driven Generator. Write for a free demonstration.



Masufacturers of Homelite Carryable Pumps · Generators · Blowers · Chain Saws
Canadian Distributors: Terry Machinery Co., Ltd., Toronto, Montreal, Vancouver, Ottawa

### **Construction News in Pictures**

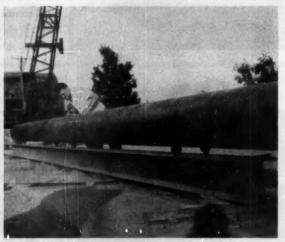


NIGHT WORK IN THE TUNNEL — Resurfacing of the busy Liberty Tubes in Pittsburgh was done in a hurry during slack traffic hours. The tube shown was resurfaced in two

night shifts with a Blaw-Knox rubber-mounted paver in two 11-ft widths of special 1-in. thick finish, putting a "velvet" surface on top of existing concrete previously topped with 2 in. of binder asphalt.



FORMS SAVE THE DAY — A set of Symons panel forms supports this transit-mix truck and its load of concrete—which toppled over when the soft edge of an excavation gave way at a home site in Oak Park, III. Fast-working trucks righted the mixer before its concrete set. Forms showed little damage.



MAKES TURNING EASY — Raymond Concrete Pile Co. is using this simple jig to turn large steel casings for accurate burning and fitting. Four pairs of casters set into top of horizontal H-beam make a cradle in which tube can be rotated. Job site is a bridge near Youngstown, Ohio, where piles are driven.

## new 1½ yard **BAY CITY** .. ideal for tough quarry work

In the quarry and on many other tough jobs, Bay City Shovels are proving their honest dependability day after day. For instance, below is a new model #70, working for the Essex Sand and Gravel Company at Peabody, Massachusetts. This low-weight, low-price #70, rugged enough for quarry work, will handle any excavating job. Powered by Cummins Diesel with hydraulic coupling, the #70 as a shovel weighs 44 tons and is equipped with 23 ft. boom, 18 ft. sticks, and a 11/2 yard rock-type dipper. Let us tell you more about this fully convertible shovel-crane which is available with standard or long crawlers. BAY CITY SHOVELS, INC., Bay City, Michigan.

#### WRITE FOR CATALOG 70/700-A

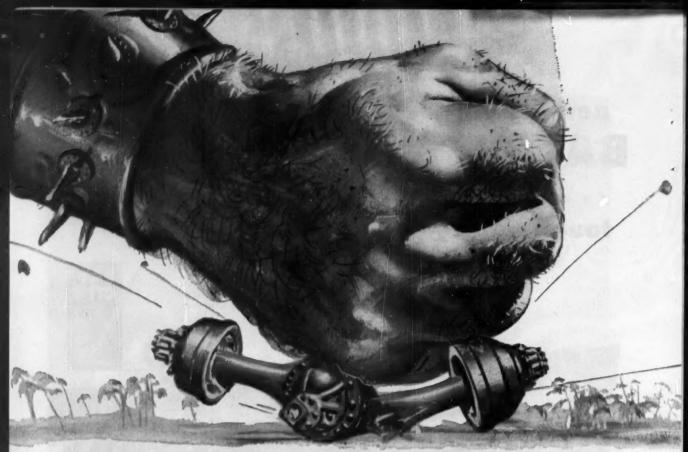
This 16-page catalog is yours for the ask-ing. It tells the story of the 70/700 in pictures and text. Write for your copy today-no obligation.





BAY CITY SHOVELS, INC. . BAY CITY, MICHIGAN

SHOVELS . CRANES . HOES . DRAGLINES . CLAMSHELLS



## We smash truck axles

in the new Timken-Detroit indoor proving ground ...and only Timken has it!

We twist, bend, jounce and jerk them. Duplicate every possible operating condition. Then toss in some "torture-tricks" of our own.

it's calculated destruction! But we know, and can tell you in advance, that a Timken-Detroit axle can take a murderous beating on the job.

Our "Torture Chamber" is a multithousand acre proving ground capsuled into one room! In it our engineers can put 50 years of experience to work . . . for you . . . experience gained in building axles for trucks, buses, trailers, farm machinery. Stock axles and gearing are subjected *indoors* to any *outdoor* operating condition—under scientific control and analysis.

The result? You enjoy longer axle life; less maintenance, repairs and downtime; lower operating costs, higher profits. Good reasons why Timken-Detroit axles are the choice of the leading manufacturers and owners.





## How TDA proves axle quality in this "Torture Chamber"

We take an axle out of stock... then run a test like twisting the axle shaft 14°, backward and forward— 36 times a minute, 24 hours a day, days on end. Or simulate a chuck hole shock every 4 seconds, 24 hours a day for months. Even "bend test" an axle housing for 1,000,000 cycles. This is our "Torture Tester." He gives axles and gearing the works in the "Torture Chamber." Above him are graphs showing speed and torque performance under any conceivable operating condition. Soft ground . . . twisting roads . . . long grades or fast highway speeds. With special dials, recorders, and electronic devices he actually drives the axle with scientific precision—from his chair!

# Far greater gear ratio "spread" with TDA 2-SPEED AXLES,

due to exclusive double-reduction design!

Unequalled Flexibility! Only Timken-Detroit 2-Speed axles are available in *three* different ratio "spreads" to meet any transmissionengine combination: 28%, 37% or 49%. Unlike ordinary designs that are limited to 37%, this Timken-Detroit Axle selection may be obtained simply by changing the low speed helical gear set.

Here's How the TDA 2-Speed Principle Works: A husky hypoid ring

gear and bigger, stronger pinion set (No. 1 in illustration below) provides the first step of the total gear reduction for both fast and slow ratios. Two large, heavy-duty helical gear sets provide the second step. Both sets are of balanced size and capacity. One set (No. 2 in illustration below) is for fast speed—the other (No. 3) is for slow speed. The clutch collar (No. 4 in illustration) moves to left or right to engage one helical pinion or the other.

The Result: Complete elimination of small, complicated parts and midget-size gears! Larger hypoid-helical design gives more teeth in contact—reducing load per unit of contact area—for more positive, quiet operation. Bearings are larger. There's longer engine and truck life. When you divide the total gear reduction, you double its life expectancy. The helical pinion not in use idles. TDA gears operate in any ratio indefinitely without overheating.

## to bits

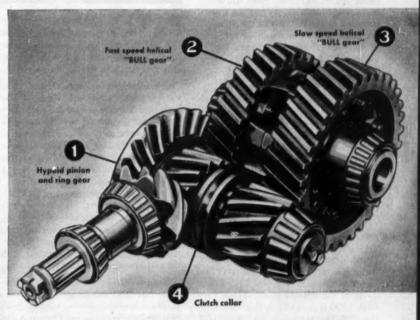




"TORTURE-TESTED" to Save Money on the Job

WORLD'S LARGEST MANUFACTURERS OF AXLES FOR TRUCKS, BUSES AND TRAILERS

Plants at:
Detroit, Michigan
Oshkosh, Wisconsin • Utica, New York
Ashtabula, Kenton and Newark, Ohio
New Castle, Pennsylvania



7 basic axle capacities! Only TDA, world's largest manufacturers of truck, bus and trailer axles, offers a family of 7 basic axle capacities, each with interchangeable final drives: single-speedsingle-reduction—single-speed double-reduction—two-speed double-reduction—using the same axle shafts and housing. Nowhere is there such a selection to fit all needs.

Exclusive "Torsion-Flow" shafts!
Forged so that grain structure of steel
conforms to shaft profile, thus assuring uniform distribution of stresses.

Exclusive heat-treating formula provides a resilient axle shaft core graduated to a tough, hard outer surface—the ideal combination for axle shaft life. And TDA "Torsion-Flow" shafts are guaranteed for 100,000 miles or 3 years—whichever occurs first.

Hot-forged steel housings! Pound for pound the strongest, most rigid ever built! Rectangular TDA housing shape gives maximum strength, uniform stress distribution, minimum weight. Ask about the TDA "Life of Vehicle" guarantee.

# \$80,000,000 construction for Plattsburg jet bomber base

Rugged yellow machines and engines help speed 3,882,500 cu. yds. of excavation for 10,000-ft. runway and other projects

Keeping on schedule is the order of the day, every working day, on the vital \$80,000,000 Air Force Base project, Plattsburg, N. Y. Construction involves clearing, leveling and paving a 10,000-ft. runway, taxiways and parking apron, relocating two miles of single-track railroad as well as building hangars, barracks, offices, jet fueling plant and water and sewage facilities. When the base is activated in the fall of 1955, a Strategic Air Command jet medium bomber wing of forty-five B-47s and twenty KC-97 tankers will be stationed here.

The historic site of Plattsburg Barracks, one of the oldest military installations in the United States, is the scene of hustling activity under the supervision of the Corps of Engineers. To maintain schedule (operating two 8-hour shifts per day), contractors are relying heavily on rugged yellow track and wheel-type tractors, scrapers, bulldozers, motor graders, engines and other specialized earthmovers — standardization that is paying off in all phases of the project.

Working on construction of the runway, taxiways and apron, which involves 3,410,000 yds. of excavation, Dutcher Construction Corporation, Queenstown, Md., has a fleet of fifteen DW21s, eighteen D8s and five No. 12s. Fill is 27 ft. at the deepest point. Hauls vary from 1800 ft. to 6100 ft. one way, with the DW21s averaging 18 cu. yds. of very sandy clay per load. A D4600 Engine powers a shovel piling brush for burning, while two D3400 Electric Sets provide electricity for night lighting.

On another phase of the project, laying 63,000 ft. of 38-in. drain pipe, Winkelman-Tompkins-Jones, Plattsburg, prime contractor, is using a D8, a PD4 Pipe Layer, a No. 6 Shovel, an HT4 Shovel and a D13000 powering an excavator. Working on the hangar area, C. D. Perry & Sons, also of Plattsburg, is employing seven D8s, four No. 80



Matched Caterpillar equipment saves seconds every cut—a D8 push-loads a high-speed, big-capacity DW21 in sandy clay.

Scrapers, one D7, two D4s and three DW20 Tractors with Scrapers. The Frederick Raff Co., Inc., is using two D8s and Scrapers and a D6.

Concerning performance, D. J. Dutcher, vice president of his outfit, says: "It has been my experience that Caterpillar\* equipment is more dependable and stays on the job better than any other make. The complete line of Caterpillar-built machines offers me the right equipment for every job. Wherever I go, I find it backed up by good parts and service." Charles Wilber, superintendent for C. D. Perry & Sons, reports: "Because of their low maintenance cost, ease of operation, dependability, excellent service and parts facilities and ability to operate in any weather, I am very well satisfied with the performance of our Caterpillar units."

Standardizing on Cat-built equipment has other advantages, too. Many parts are interchangeable, cutting down time and parts inventory. Operators and machinists, familiar with one make of machinery, get more work out of it. And the nearby Caterpillar Dealer provides time-saving, money-saving one-stop service whenever needed. See him—ask him to show you'll profit more by standardizing on Caterpillar equipment.



Operator's clear view of blade and job in the No. 12 helps speed shaping and leveling fill, also building road.



Piling brush for burning, this shovel gets dependable, low-cost power from its honestly rated Cat\* D4600 Engine.

CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS, U. S. A.

HENRY T. PEREZ, Editor

### Take a Bow!

AS YEAR-END APPROACHES, it brings a time for self-appraisal and a fresh look at the construction industry. Just where does it stand today in the public esteem? Too low! Architects, corner-stone layers and ribbon cutters hog the limelight; the contractor and the men who battle to bring the project to completion remain in the background.

Is the lack of public recognition of construction's vital role due to a true feeling of modesty that makes the contractor self-effacing? Or is it that the construction industry in general does not realize how potent a factor it is; what the products of its labors mean to the well-being of the free world?

The situation is reminiscent of an old story that goes somewhat like this: When three masons working side by side were asked what they were doing, one answered, "I'm laying brick." Said the second, "I'm building a wall." While the third replied, "I'm constructing a great cathedral."

Too often, the construction industry, like the first or second mason, underestimates itself. Construction's accomplishments are far more than piles of dirt, boxes of steel or concrete, flattened hills or strips of asphalt. They are even more than dams, schools, factories, roads, air bases and the like. Construction's monuments, in the final analysis, include the thriving industry and people furnished power and pure water by those dams, the educated persons graduated from those schools, the myriad goods turned out by those factories, the ease of travel due to those roads, and the democracy protected by those air defenses. And so it goes, through all the

countless operations that construction performs in changing the face of the earth for the benefit of mankind.

These beneficial changes are wrought by an industry that is able to equip and man itself to tackle any job. Construction is an industry of vision and courage. It takes vision to figure out a way to build better, faster or at less cost—yet new ways are being found every day. It takes courage for a contractor to pit his analysis of a job against that of his competitors and back up his judgment with thousands, or even millions, of dollars of his own money. It takes extraordinary guts to tackle some jobs at any price, yet none has gone begging for want of people to undertake it.

Despite all this, the industry as a whole is too often taken for granted. It seems strange that construction — the biggest industry in the most productive country in the world — so seldom is given the public honor and recognition to which its accomplishments entitle it. True, construction has been making headlines for the tremendous volume of work it has performed this year and has in prospect for the future. But contractors are mostly damned for the temporary inconvenience their under-way projects sometimes cause; hardly ever praised for the benefits those projects ultimately bring.

Nonetheless, all segments of this great construction industry can take quiet pride in their tremendous accomplishments in building the facilities the free world needs for a better life. So take a bow, Construction! It is long overdue.

## Merry Christmas

OLD FRIEND Spike Hennessey shakes off retirement to join us in sending you all best wishes for a Joyous Yuletide Season. That's no false front Spike's rigging Merry Christmas on, either. For behind it are our hopes and prayers that we will all follow the precepts of the Prince of Peace, to make 1955 the Happiest of New Years.





Before ... Houston's old 30-mgd water-supply canal is in sad shape after unwatering, even with muck removed. Here, International TD-14 tows rollers to compact a new clay fill, prior to re-shaping.



After... Lined canal, to be flanked by 11/2-ft leves, can carry 200 mgd. Water is temporarily exerted through ditch at left.

Workman at right unbolts track on which the canal paving machines rode.

## **Old Ditch Becomes New Canal**

BROWN & ROOT INC. had a tricky job on its hands—reconstructing 13½ mi of what was little more than an unlined sloughed-bank ditch that supplied 30 mgd to Houston's water purification plant. To transform the ditch into a modern 200-mgd canal, the Houston construction firm reshaped and lined it after developing special methods and tools that helped complete the project well ahead of schedule.

One of the job requirements was that the contractor, throughout his operations, insure delivery to the plant of 40 mgd—a one-third increase over the ditch's then ex-

isting capacity, which was restricted by siphons. So, where right-of-way was sufficient, a diversion ditch with larger siphons was dug alongside the existing route. This temporary ditch was dragline-cut as deep as necessary to furnish the fill required for its own levees and also to bring near-by permanent levees up to desired grade.

When there was no room for a diversion ditch, water was carried by a 30-in. welded steel pipeline. But it took a battery of three Byron-Jackson pumps, each rated 12,000 gpm at 105-ft head and driven by a 500-hp Sterling engine,

to push the required amount of water through.

With water diverted, the original canal was reshaped to proper section: a 4- or 8-ft bottom width (depending on gradient), flat 2:1 side slopes and minimum 6-ft depth. First, muck and debris were stripped by graders operating along the slopes. These were often so steep and messy, because of previous sloughing, that it was necessary to hitch the grader to a tow tractor ahead and to a hold-up tractor on the lip of the bank above. Unwanted material was kicked to canal bottom by the graders and clammed out for spoiling.

Next, levees were brought to proper grade for laying ties and rails for canal lining equipment that was to follow later. Canal banks and bottom were also filled



TRICK DOZER, a Cat D8 carrying contractor-built winged blade, handles semi-finish grading in section with 8-ft width.



LITTLE BROTHER, a D4 with special blade for work in 4-ft canal, helps on larger section too. Northwest dragline will remove spoil.



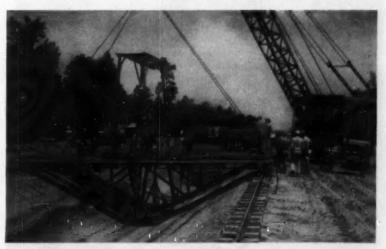
TRIMMING MACHINE follows on heels of trick dozers to prepare canal section for concrete lining. Rig rides 33½-ft gage rails here,

where hydraulic gradient is steep and canal bottom width is 4 ft. Machine can be widened to trim sections with 8-ft bottom.

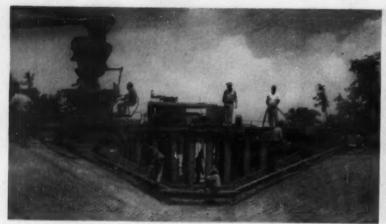
in with compacted clay where necessary. Side slopes were made flat enough for normal sheepsfoot rolling operations lengthwise along them, while the bottom was brought up to within 4 ft of top of slope. In stretches where excavation was required, slopes and bottom were taken down to a similar stage.

For semi-finish grading of these purposely somewhat over-filled or under-excavated sections, Brown & Root built what they called their "trick" dozers—special V-shaped blades that matched the canal's 4- and 8-ft bottom widths and 2:1 side slopes. Pendulum-like sighting devices showed when the blades were level.

Tractors fitted with the trick blades operated in the canal, trimming excess material and piling it ahead. Spoil was removed by clam-



MESH-LAYING JUMBO, an innovation in canal-paving operations, is placed on rails by Manitowoc crane that will later add power unit (right) to self-propelled rig. Jumbo carries seven reels of reinforcing mesh, which is payed out, as machine advances. Built by Brown & Root, canal contractor, jumbo is fitted with rolling gantry for shifting reels.



SLIP-FORM PAYING MACHINE lays more than 1,500 lin ft of 4-in. canal lining per day. Rig is electrically powered and hydraulically adjusted by jacks at each truck. Car on deck distributes concrete to tremies, while men raise mesh 2 in. for correct embedment in slab.



HIGHWAY PAVER, a Koehring 34-E Twinbatch with special bucket, feeds concrete to slip-form machine from canal bank. After strike-off, machine smooths air-entrained 4,000 psi mix with spring-loaded steel trowels on rear. Only minor hand finishing is necessary.



FINAL JUMBO carries joint finishers and equipment for spraying Gulf-Seal curing compound. Power for electric motors is furnished by generator on slip-form machine shead.

shell or dragline and cast alongside the canal, where scrapers picked the material up and moved it ahead for use as fill.

Operators of the trick dozers were guided by grade stakes carefully placed at the top of slope. When the tip of the blade hit a stake, the operator knew that the slope was just right and that he had left the required couple of inches of material for fine grading by a canal-trimming machine.

A train of rail-mounted canal lining equipment, led by the trimming machine, followed the trick dozers. All the jumbos were adjustable to fit both 4- and 8-ft canal sections. And with one exception they were pretty much standard Guntert & Zimmerman machines. The exception: a jumbo built by Brown & Root to lay reinforcing mesh.

#### Mesh Placer

The mesh-laying jumbo, self-propelled like the other machines, payed out galvanized 4x4-in., 10-gage welded wire fabric from seven reels. Capacity of each reel was 450 lin ft of mesh. Three reels covered each slope, and one covered the bottom, leaving sufficient lap for hand tying. To insure the mesh's correct 2-in. embedment in the canal's concrete lining, workmen on a following slip-form paver raised the mesh off the ground as their machine advanced.

The slip-form concreting machine deposited a 4-in. lining of 4,000-lb air-entrained concrete. A hopper car on top, fed by a 34-E dual-drum paver on the bank, distributed the mix to canal slopes and bottom through 12 or 14 tremies. The machine spread, vibrated and smoothed the lining concrete, and cut longitudinal dummy joints.

Following it came a final jumbo from which transverse dummy joints were cut on 20-ft centers. Also from this jumbo, white-pigmented curing compound was sprayed on the surface to complete the lining operations.

#### In Charge

Brown & Root's \$3,200,000 canal improvement job was handled by Project Managers Fred Duke and H. G. Twyman. W. C. Bengel was project engineer. Consultants were Lockwood & Andrews, Houston, for whom Richard S. Gray was resident. F. N. Baldwin is director of utilities for the City of Houston.



DESIGNED by a West Coast contractor, this giant power with a reach of 60 ft will lay 650 tons of asphalt per day. Only one

operator is required to handle the machine which is propelled by Fairbanks Morse motors attached to winches.

## **Asphalt Paver Has Long Reach**

A 20-TON "LAND PLANER" asphalt paving machine with a 60-ft reach, capable of averaging 650 tons per day, was successfully used on the San Gabriel river flood control channel near Long Beach, Calif.

According to designer-contractor Bert Altfillisch of Downey, Calif., only half the time was required to lay the 1,664,000 sq ft of paving using the machine as would have been required using conventional equipment. He also reports using only a 10-man crew instead of the 17 normally required.

The paver has a center section suspended from a frame supported by front and rear rollers. In the center section are 2 screw conveyors each 12 ft long and 10 in. in dia powered by two Fairbanks Morse motors. These are installed in trough feeders set in a T.

Asphalt is unloaded from a dump truck into the top trough, which empties at the rate of 4½ tons every 1½ min into the second trough. The screw conveyor in the second distributing trough reverses, going the full length of the trough and spreading the asphalt to a 3½-in. thickness. Double hydraulic jacks, hand-operated, adjust the strike-off plate on the rear end of the distributor trough to



CENTER SECTION of the paver houses two screw conveyors, each 12 ft long and 10 in. In dia. Men with hooks lift wire mesh so that it is embedded in center of asphalt.

get proper thickness of the asphalt.
Only one operator is required to
control the machine from an open
cab set on the center span.

The machine is propelled by 2 winches with FM motors with cables reaching 750 ft away from the base. A Caterpillar diesel genera-

tor, skid-mounted behind an Allis-Chalmers HD-20 tractor-dozer, powers both screw conveyors, winches and lights. It also serves as an anchor for the paver. An Allis-Chalmers D-20 torque converter keeps the hopper upright and the movement slow.



ASPHALT SURFACING is done by a 12-ft wide Barber-Greene paver with a 2-ft berm attachment. An Apsco laid some 8-ft shoulders

and paved slopes. Two lifts of 2 in. each were placed in an overtime operation to take advantage of good weather.



293QS Universal unit with 20x36-in, jaws and dual 18x30-in. rolls.

CRUSHING AND SCREENING aggregates for the job. Plant is a Favorable gravel deposit dictated location of aggregate and asphalt plants, in spite of 121/2-mi haul to job.

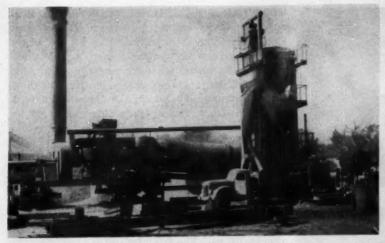
## Madonna Paves 6 Miles in 14 Days

HALF THE BLACK TOP work on a 6-mi, 4-lane stretch of California's coast highway was knocked off in a two-week period in late October. Madonna Construction Co. of San Luis Obispo, Calif., used a big asphalt plant, a fleet of 26

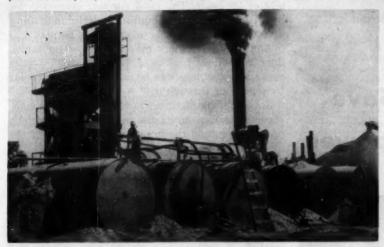
trucks and two pavers to do the work.

The \$1 million job involves converting a two-lane highway through rolling hills into a four-lane divided express highway. Generally, the two new lanes were

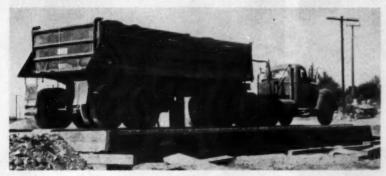
built first with improvement of the two existing lanes to follow. By October, Madonna had completed the grading of the two new lanes. His problem was to get the surfacing work done before winter rains set in. This would permit



HOT MIX IS PRODUCED in 5,000-Ib Standard Steel asphalt plant adjacent to aggregates plant. Excess capacity of unit easily keeps two pavers busy on 34-ft highway.



BATTERY OF TANKS serves plant. Paving was of an experimental nature requiring eight different asphalts. Hence, contractor had Wooldridge Mfg. Co. make six 6,000-gal tanks.



BIG LOAD OF HOT MIX is weighed on 60-ton Ferguson scale as a means of measuring payment. Fleet of 26 trucks for long haul includes Mack, GMC, Reo and Ford units.

diverting traffic to the new lanes, thus freeing the old lanes for reconstruction.

Complicating the paving was the fact that the California Division of Highways added experimental fea-

tures after the contract award was made. Eight different asphalts were used. Aside from the work involved in keeping track of which asphalt went where, this required additional asphalt storage tanks. Aggregate and asphalt plants were located near a river-bed gravel deposit 12.6 mi from the job. Madonna had other paving jobs in the area so the relatively long haul for this particular job was justified.

Aggregate plant is a 293QS Universal unit with 20x36 jaw crushers and dual 30x18 rolls. Asphalt plant is a 5,000-lb Standard Steel Co. installation. This is admittedly over capacity for the job. But it helped get the work done in the shortest possible time.

#### Two Lifts

When time came for surfacing to start, the California weather cooperated to the fullest extent with a two-week period of real Indian summer. Madonna extended shifts to 10½ hours, taking advantage of as much daylight time as possible. And the crew worked Saturdays.

A fleet of 26 trucks serviced the job. Included were Mack, GMC, Reo and Ford units. All trucks were weighed for payment purposes on a 60-ton Ferguson scale.

Two lifts of 2 in. each were placed on the 34-ft wide pavement (24-ft, two-lane main surface with 8- and 2-ft wide paved shoulders). The 2-in. leveling course was rolled by a 13-wheel pneumatic roller built by Madonna's master mechanic Dan Borradarri. The roller has a forward speed of 25 mph and a reverse speed of 18 mph. According to Madonna, it was a very satisfactory piece of equipment with excellent coverage.

The 2-in, surface course was laid largely by a Barber-Greene finisher paving a 12-ft width with a 2-ft berm attachment. An Apsco paver was used for slope paving and some shoulder paving. The 8-ft wide unit also had a berm attachment.

Three Buffalo Springfield rollers compacted the asphaltic concrete.

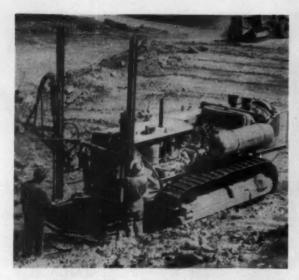
#### **High Production**

Production for the 14 days needed to pave the 6 mi of 2-lane road was 25,000 tons. Maximum day was 2,200 tons in 10.5 hr.

Consistent high daily tonnages were the direct result of ample equipment, a good aggregate supply, favorable weather and, above all, good management.

Work of the Madonna Construction Co. is under the direct charge of A. Madonna.

For the California Division of Highways, George T. McCoy is State Highway Engineer, E. J. L. Peterson is district engineer and Lee Bunce is resident engineer.



By moving easily over rough terrain . . .

# Self-Contained Crawler Drills Save Time and Manpower

CRAWLER MOUNTED SELF-CONTAINED drill rigs have gained much popularity in the last year. Contractors like them because they move quickly over rugged ground, reduce the drilling crew, and eliminate a centralized compressor plant and its attendant. Air-line breaks due to freezing, blasting, and collisions are not possible. And operators work more efficiently because they do not become fatigued from moving wagon drills, compressors, and air lines.

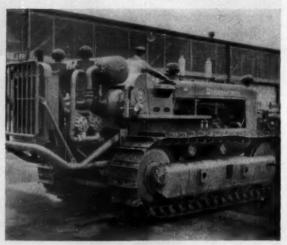
Generally, the tractor mounts one or two compressors on its back and from one to four drills on the front, or side. Some units mount self-contained compressors, (see CM&E Nov. '54 p. 116) and others drive a mounted compressor through the rear power take-off. Compressors deliver at least 125 cfm at 100 psi. The 600-cfm unit is most common.

Drill mountings are usually adjusted hydraulically or by cable. The rigid support given by the hydraulic-boom-type mounting is useful in drilling ditches, faces, and other inaccessible points.

Auxiliary equipment may include water tanks, dust collectors, blow-pipe take-off, and storage racks. A water tank can be used as an inter-cooler by piping air through it.

Several manufacturers now offer drill and compressor package units for mounting on tractors, and some supply the entire machine. Most of the available types are illustrated on these pages.





Le Roi 600 CTM

Mounted on any make crawler tractor whose engine has available at least 150 hp at 1,250 rpm, the Le Roi 600 CTM is directly connected to the rear power take-off shaft. Standard equipment includes an independent clutch to disengage compressor from power take-off shaft, and a deep crank case for opporting at angles up to 30 deg. Heavy undurcarriage and intercooler guards, air receivers, and oil bath air cleaners also are included. The compressor adds 5,030 lb to the weight of the unit. Wagon-drill air-feed assemblies of the Le Roi-Cleveland DR14 class usually are mounted on the front of the tractor. Le Roi also offers the T-286, a small 25-hp tractor that mounts two-air-operated drill booms on the front.



#### Joy Trac-Drill

Self-contained Joy Trac-Drill on Caterpillar D8 tractor works on New York Thruway for George M. Brewster, New Jersey contractor. Compressor package, adapted for use with tractor's rear power take-off, delivers more than 600 cfm. Dust collector on top of tractor is powered by separate engine. Drifter-type drills, using 8-ft steel changes, are mounted on chain feeds. Drill masts swing in 30-deg vertical arc. Hydraulically actuated booms swing up or down 50 deg from horizontal. Each drill jib operates through horizontal arc of 100 deg. Packages are designed either for Caterpillar D8 or International TD24. For applications where hydraulic boom positioning is not required, the Trac-Drill is available with solid front mounting.



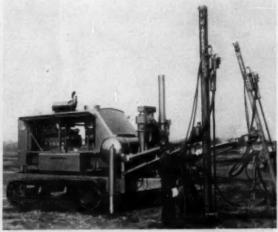
#### Joy Pipeliner

Side-mounted Pipeliner and front-mounted Trac-Drill have identical compressor package. Drill packages are different, but made of same components. Side-mounted masts swing through 30-deg vertical arc, and jibs swing through 50-deg vertical arc. Operating within horizontal arcs of 100 deg, extensible jibs can reach along a 40-ft stretch of ditch. Standard 8-ft jibs reach 27 ft, and standard 10-ft jibs reach 30 ft. Also available are remote controls located near base of boom adjacent to jib controls. For side mounting, tractors must have a rigid, rather than an oscillating frame. The Pipeliner is used mostly for trimming ditch walls, as well as for clearing right-of-way ahead of tranching machines. One operator and two drillers are required.



#### **Gardner-Denver Tractor Jumbo**

Package units, consisting of rock drills on long feed mountings, hydraulic booms, and an air compressor, are supplied by Gardner-Denver Co. for mounting on a Caterpillar D8 tractor. Compressors are available in 600-, 500-, 365-, and 315-cfm capacities for direct connection to the tractor's rear power take-off. Several types and sizes of hydraulic booms, drills, and mountings are offered to make the tractor-mounted jumbo tailored to the individual job requirements. Remote controls also are available which permit all drilling and positioning operations to be controlled by one man from a central station on the tractor. In highway rock cuts, rigs have aververaged more than 130 holes 12 ft deep every day.



#### Ingersoll-Rand Drillmaster

A completely integrated unit that is self-contained and self-propelled is now available from Ingersoll-Rand Co. The Drillmaster includes two hydraulic booms, two 10-ft wagon-drill towers, two heavy-duty rock drills, a 600-cfm compressor, a dust collector system, and a crawler assembly. The rig requires only two men. Holes can be drilled up to 18½ ft between centers. Drills use an 8-ft steel change. The rig's speed is 2 mph, and it will negotiate a 15% grade. Booms can be lowered all the way for toe-hole work, or raised nearly 10 ft off the ground for drilling breast holes. Hydraulic jecks help stabilize the rig during drilling. I-R also supplies a drill and compressor package for mounting on crawler tractors.

WORLD'S TALLEST CHIMNEYS climb skyward at Clifty Creek Station of Indiana-Kentucky Electric Corp. which will supply power to Atomic Energy Commission's vast Portsmouth Area Project in Ohio. Here, two of three similar chimneys have been carried to 100-and 237-ft heights, will 'tower 707 ft above foundation slabs when completed. Gold Medal hoist towers and Tubelox steel scaffolding inside chimneys will eventually reach 7211/2-ft height. Cables from towers support chimney-shell forms and raise them efter each 10-ft pour.

## Chimney Reaches Record Height in 71 Pours

THREE 707-FT CHIMNEYS—the world's tallest, and each nearly 100 ft higher than the previous record holder—will soon be completed near Madison, Ind. To carry them to this skyscraper height, Custodis Construction Co. is concreting the shells in 10-ft lifts in unusual steel forms that are raised and partly supported by cables from interior scaffolding and hoist towers.

The chimneys taper from a 64-ft outside diameter and 29½-in. concrete shell thickness at the base, to 17 ft and 7 in. respectively at the top. Smoke enters the chimney through a breeching above a solid interior slab 150 ft above the base. Space below this slab is divided into floors for such power-plant facilities as control room, offices, machine shop, water tank or bomb shelter.

#### **Pours Vary Greatly**

Each chimney calls for 71 shell pours, varying from 187 yd in the first 10-ft lift to 14 yd in the topmost one. Interior forms for these pours are a circular double tier of steel panels roughly 2x5 ft high. Because chimney inside circumference decreases some 2 ft in each 10 ft of height, one set of the 2-ft wide panels is removed from the circle for each subsequent pour.

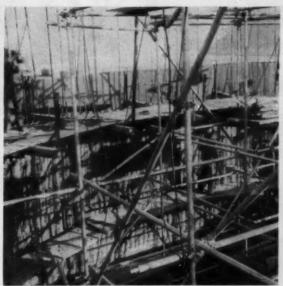
Interior form panels are held in place by wire ties to the shell's reinforcing, and by a series of circumferential rods at the back. Rods are standard %-in. straight reinforcing bars 20 ft long. But they are forced into clips permanently attached to the form panels to spring the assembly and give it an arch action. Each clip holds three superposed rods, whose joints are staggered around the ring.

Interior panels are stripped, raised and placed individually by hand from suspended platforms. Exterior forms, however, are handled as a complete circular unit.

Exterior forms are a series of 3x10-ft high panels of 14-gage steel stiffened by angles and assembled into a ring. Special panels at three points in the ring lap adjacent ones



EXTERIOR FORMS hang from hoist tower that raises men and material. Tower legs are 3-in. pipe—double extra heavy for first 221 ft, extra heavy for next 149½ ft, and standard for top 351 ft.



INTERIOR FORMS are 2-ft wide steel panels with clips on back to hold circumferential bracing rods. On this first chimney, 51/2 mi of Tubelox scaffolding components help brace the hoist tower.



CONCRETE IS DUMPED to forms from platform that rides on exterior form assembly. Hoist tower of this chimney is braced by Gold Medal hoist tower components of 1-, 2- and 3-in. pipe.

to accommodate varying circumference from pour to pour, caused by the chimney's batter. When total leeway afforded by the lapped panels is reached, three standard panels are removed and the laps re-extended.

The exterior form ring is held in position at various diameters by an ingenious arrangement of circular and radial members. Main components are two concentric rings of 6-in. channel iron. Radial 2-in. bars fastened between the channels' webs keep these rings 6 ft apart. From each radial bar, a spe-

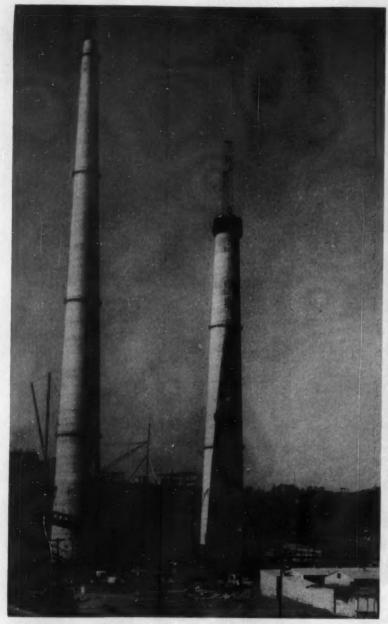
cial casting supports the forms. Top of the casting is free to roll along the bar, while the bottom is slotted to serve as a track in which rides a horizontal T-shaped member on the outside top of the forms. That way, the necessary coincidental decreases of diameter and circumference are taken care of.

Castings, and thus forms, are adjusted to correct position for each pour by a threaded-rod device that connects them to the inner channel ring. Four different sets of channels, each accommodating up to a 12-ft variation in shell outside

diameter, must be used on each chimney.

Exterior form assemblies are supported at 22 points by radial 6x6-in. timbers fastened atop the channel rings. The timbers extend far enough to carry suspended working platforms for finishing concrete and handling interior forms. Each timber, in turn, is suspended by a 1-ton chain hoist on a 3/8-in. cable fastened to the top of a pipe-frame tower extending up through the chimney.

The tower consists of a Gold Medal double-shaft hoist tower of



RECORD-HEIGHT CHIMNEY is topped out at 707 ft above foundation, as second comes along and third (right) is started. Chimney diameter is 64 ft at base, 17 ft at top. Shell thickness goes from 291/2 to 7 in. Tarpaulins and Silent Glow heaters protect new pours.

tubular steel, combined with an additional framework either of Gold Medal hoist tower components or of Tubelox steel scaffolding components, all supplied by Patent Scaffolding Co. The hoist tower rises on chimney center line. The extra framework to which it is fastened extends out close to the chimney shell. It helps brace the tower and also anchors the cables that suspend the exterior form assembly.

Hoist tower and surrounding frame are first erected to a 100-ft height. As the chimney is built upward, they are periodically extended to keep to a comfortable minimum the vertical angle of the form suspension cables. At the same time, the frame is stepped back so as not to interfere with chimney shell. Ultimate height of tower in the 707-ft chimney is 721½ ft.

Every 30 ft or so, the tower frame is given additional support by %-

in. cables and turnbuckles extending diagonally downward from stirrups embedded at 15-ft intervals around the chimney. Part way through construction of each chimney shell, these cables carry all the weight of the framework above the 150-ft level while the floor there is poured. Later, turnbuckles are slacked slightly to land this upper framework on sills on the completed floor.

This procedure is necessary because the space in the chimney below the flue section must be freed as soon as possible for installation of facilities. Therefore, all lower tower framework other than the double-shaft hoist tower itself has to be removed.

#### **Hoists Handle Everything**

The Gold Medal hoist tower, powered by 100-hp American or Thomas double-drum electric hoist, takes men and materials to shell-construction working level throughout the job. One shaft accommodates a platform skip fitted with a Lilly over-wind safety device to prevent excessive speed. The other shaft carries a 1-yd concrete bucket that discharges into a 55-cu ft hopper.

Concrete is a 5½-sack 3,500-psi mix with a 2½-in. slump. Moved from hopper to form in 6-cu ft buggies, concrete is dumped evenly around the ring and thoroughly vibrated. A 25- to 30-man crew generally makes a pour in an afternoon, allows it to set overnight, and strips the next morning.

Custodis Construction Co., Inc., New York and Chicago, is building the three 707-ft skyscraper chimneys for Indiana-Kentucky Electric Corp. Earl Snodgrass is the latter's project manager at its new 1,200,000-kw Clifty Creek Station. Harold Morgan is field superintendent for Custodis, under Paul Juhl, vice-president and general construction superintendent out of the firm's Chicago office. The recordheight chimneys were designed by H. B. Schneider, Custodis' vice president and chief engineer, in New York.

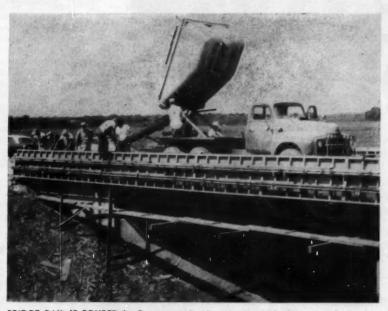
Indiana-Kentucky is a subsidiary of the Ohio Valley Electric Corp. a company organized by 15 private electric utility companies of the Ohio Valley region to furnish the full electric power requirements of the Atomic Energy Commission's Portsmouth Area Project. Clifty has a sister plant, the 1,000,000-kw Kyger Creek Station, being constructed at Cheshire, Ohio.



DUMPCRETE BODY mounted on Ford truck discharges 4 yd of plant-mixed concrete in front of Jaeger spreader on Ohio Turnpike. aged 3,200 ft of 12-ft lane per 9-hr day. Method eliminated pavers.

With a fleet of ten trucks hauling up to 5 mi, production aver-

## Pave Turnpike With Plant-Mixed Concrete



BRIDGE RAIL IS POURED by Dumpcrete. Besides 77,000 cu yd of concrete for paving, the contractor's plant also supplied more than 18,000 cu yd for structures.

HAULING PREMIXED CON-CRETE by truck from a central plant and dumping it in front of finishing machines proved to be a fast, economical method of paving a 10-mi section of the Ohio Turnpike. The job was just south of Youngstown and required 77,000 cu yd of concrete placed 10 in. thick in two 24-ft lanes.

To supply a fleet of 10 Ford trucks mounting Dumpcrete bodies, D. W. Winkelman Co., of Syracuse, N. Y., set up a batching and mixing plant at the middle of the job. It was fully automatic and produced 120 cu yd per hr. Dumpcretes loaded at the plant, hauled their 4-yd batches up to 5 mi, and discharged them in less than a minute over the subgrade. The method eliminated pavers, water trucks, and the men to run them. Besides this saving on equipment and manpower, central mixing provided better quality control and made it possible to supply economically the concrete



CENTRAL-MIXING PLANT set up midway on the 10-mi job produced 120 cu yd per hr. Aggregates were picked up in a reclaiming

tunnel and fed to overhead bins by inclined conveyor. Johnson automatic batchers quickly charged two Koehring 2-yd mixers.

for 18 structures on the job.

Production averaged an impressive 3,200 ft of 12-ft lane per 9-hr day. Contractors on adjacent sections achieved about the same production, but they had to use two pavers, a fleet of water trucks, and a bigger crew to do it.

Hauling mixed concrete for periods as long as 15 min presented no special problems. Segregation in the high quality plant-mixed concrete was reduced during the haul by a center baffle in the Dumpcrete body. Samples of concrete taken at the paving site showed the required 2½-in. slump, an air content between 4 and 5%, and a compressive strength of more than 5,000 psi after 28 days.

In front of the paving spread, the subgrade was prepared by a Buckeye finegrader and compacted by a Jackson self-propelled vibratory unit. The first machine in the paving spread was a Jaeger spreader, which leveled off the concrete at a 7-in. depth. Behind the spreader, workmen laid 11x16-ft sheets of 6x12-0/4 welded wire fabric. To fill up the remaining 3 in. of pavement, concrete was dumped over the fabric and leveled with a second Jaeger spreader. Next in



FINEGRADE gets final rolling from Jackson multiple compactor mounting 5 shoes. Preliminary grading was done with Buckeye finegrader pulling a form-riding grade log.

line was a Heltzel hydraulic finisher, followed by a Koehring longitudinal float. Hand finishers completed the operation. Curing paper was left on for at least 7 days.

To maintain a production of 120 cu yd per hr, Winkelman set up a new Johnson automatic plant and charged it with a reclaiming tunnel conveyor system. Aggregates were trucked in and stockpiled over the tunnel by a 3-yd dragline. Inside the corrugated metal tunnel, a 200-ft conveyor with a 22-in, belt picked up aggregates as they fell (Continued on page 66)

# The Engineer's Report

CASE HISTORY

Chevron Starting Fluid

San Francisco Chemical Ca, Montpelier, Idaho.

## Fast starts save 50 man-hours each day!



WITH TEMPERATURES DOWN TO 20 BELOW ZERO for weeks, Chevron Starting Fluid speeds up starts of trucks, tractors and shovels at San Francisco Chemical Co.'s phosphate mine at Leefe, Wyoming. Winter temperatures here sometimes drop to 50 below zero, but even then Chevron Starting Fluid makes it possible to start both diesels and gasoline engines. According to Mr. P. S. Pugmire, General Superintendent, this occasionally saves the mine up to 50 man-hours a day - about 2 hours starting time for drivers of trucks and tractors, also time of other workmen who cannot begin work until equipment is operating. Chevron Starting Fluid is available in 1-pint cans and in 7- and 17-cc gelatin capsules. Your supplier also has the new Chevron Pressure Primer System using safe 9.9-cc pressurized steel bulbs which, when punctured, force priming fuel into air intake system, permitting instant ignition.

FREE FOLDERS tell you more about Chevron Starting Fluid and the Chevron Pressure Primer System Write or ask for them today.

FOR MORE INFORMATION about this or other petroleum products of any kind, or the name of your distributor, write or call any of the companies listed below.



How CHEVRON Starting Fluid Starts Gasoline and Diesel Engines Instantly



- A. Atomizes in lowest temperatures and provides easily ignited vapor in combustion chamber.
- B. Pressure, or the weakest spark, fires mixture—turns engine and heats air for regular fuel mixture.
- C. Contains lubricant and additives—in hibits cylinder wear and ice formation in primer equipment.

STANDARD OIL COMPANY OF CALIFORNIA, San Francisco 20 • STANDARD OIL COMPANY OF TEXAS, El Paso THE CALIFORNIA OIL COMPANY, Barber, New Jersey • THE CALIFORNIA COMPANY, Denver 1, Colorado

## COMMENT

## BUTLER ENGINEER ... Of Ready Mix Out In The Sticks

There seems to be no discernible limit to the Ready Mixed field. I remember 20 years ago when all of us at Butler Bin were greatly concerned because we felt that the saturation point for Ready Mixed Plants was just ahead . . . Like the head of the U. S. Patent Office back somewhere about the 1870's who advocated its liquidation because we had attained the limit of development and there could be nothing patentable in the future.

Now the Ready Mixed market is growing in small communities... and I mean country towns that are really country. Farmers are turning toward concrete for many things... feed lots, foundations, open pit silos and driveways—as just a few samples.

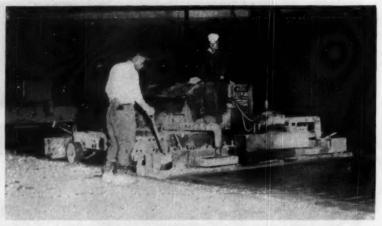
The financial success of a number of Ready Mixed operations in small towns is startling. There's big money to be made where you are the nearest and only source for concrete . . . We suggest to present plant owners in larger towns and to those who are contemplating the establishment of a Ready Mix business that they look into the possibilities of branch plants in the Alfalfa Corners of this country. Flexibility in shifting trucks, reducing hauling dis-tances—all at virtually no increase in overhead - make branch operations attractive. And prices for concrete are very interesting.

Fellow I know in the East is a great lover of music and gals. Recently he bought a complete installation of very costly high fidelity sound equipment for his collection of recordings. When I saw him recently he commented on it. Another friend who was in the conversation said.

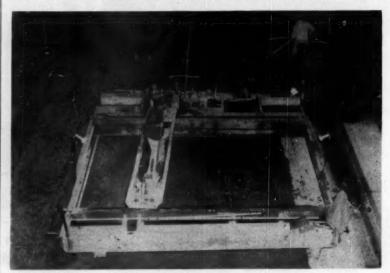
"Yeah. Bill's gone from infidelity to high fidelity."

The Butter Engineer

BUTLER BIN COMPANY
WAUKESHA, WISCONSIN



TRANSVERSE FINISHER following closely behind second Jaeger spreader is new Heltzel Flex-Plane. Its smooth hydraulic operation produces good finish. Screeds work independently.



LONGITUDINAL FINISHER, a Koehring, moves back and forth across slab applying finishing touches. Gas-engine generator on finisher supplies electricity to lights for night paving.



RADIO EQUIPMENT is installed on Jaeger spreader so that paving foreman can notify the plant immediately to stop mixing concrete, if breakdown occurs at the spread.

through gated openings in the roof. At the end of the tunnel a 250-ft inclined conveyor carried one size of aggregate at a time to the top of the plant where a chute directed it into the proper bin. With an electrical control system, a man on top of the plant opened and closed the gates on the tunnel roof openings.

Bulk cement hauled in carriers was unloaded and stored by a screw-conveyor and bucket-elevator system. Storage silos held 875 bbl each. Water for the mix was supplied by a 16,000-gal storage tank kept filled by a 4000-gal tank truck.

Cement and aggregates were batched automatically and dumped into two Koehring 2-yd mixers. A flip of a switch changed the mix to meet specifications for paving, structures, or footings. Water and Protex air-entraining agent were added automatically at the mixers, Typical weights for a 2-yd batch were as follows:

Cement	1,222	1b
Sand	2,237	lb
#4 Slag	1,174	1b
#3 Slag	2,181	1b
Water	550	1h

Slag was used for coarse aggregate because the job was close to Youngstown steel mills. To keep the dry slag from absorbing too much water from the mix, the stockpiles were wetted down with lawn sprinklers.

Power for the plant was supplied by two General Motors 175hp diesel-electric sets.

#### Via Radio

When an equipment breakdown at the paving spread caused a halt in the pouring operations, it was important for the contractor to communicate immediately with the plant and stop any more mixing of concrete. This was done successfully with a two-way radio set up, including both General Electric and Motorola units. In addition to radios in 16 pickup trucks and 2 cars, units were also installed on the spreader, at the batch plant, in the repair shop, and at the field office. The system worked so well that calls could be picked up even by men in Winkelman's executive airplane that often inspected the job.

George Cecil was project superintendent for D. W. Winkelman Co. William Bryan was project manager for Richardson, Ramsey, Morehouse & Fisher, consulting engineers.



## Dependable Power by HERCULES



## for All Construction Needs!



Whether it's gasoline, gas or diesel powered construction equipment, dependable Hercules power is your assurance of low cost operation and a minimum of "down-time". 70 models ranging from 3 to 500 H.P. provide the right size engine for all construction needs.

If you are buying new equipment or repowering old machinery, it will pay to investigate the advantages of Hercules power. There's a "right-size" Hercules engine or power unit for your particular application. The above photographs illustrate a few of the various applications of Hercules Engines in construction machinery.

For more complete information on Hercules Engines and Power Units write the factory or contact your local Hercules distributor. Ask for Bulletin SP-136, it gives horsepower ratings, weights and dimensions on Hercules Engines and Power Units.

Engine Specialists since 1915



## HERCULES ENGINES

HERCULES MOTORS CORPORATION

111 Eleventh Street, S. E. . Canton, Ohio

# the prover tractor-shovel!

PROVEN EXPERIENCE 34 years of pioneering and huilding hydraulic tractor-shovels more experience PROVEN EXPERIENCE 34 years of pioneering and their attention of pioneering and their combined attentions of pioneering and their combined attentions. PROVEN PERFORMANCE 90% of the thousands of PROVEN PERFORMANCE \_\_ 90% of the thousands of the last 15 years are still in service.

PROVEN SERVICE Some 300 "PAYLOADER" Dis-PROVEN SERVICE — Some 300 "PAYLOADER" Disfacilities for their customers.

Your "PAYLOADER" Distributor is anxious to prove what a "PAYLOADER" Can do for you and help you choose the size and type best suited to your use. See him today or write The Frank G. Hough Co., 706 Sunnyside Ave., Libertyville, Ill.

4-wheel drive "PAYLOADER" backfilling trench

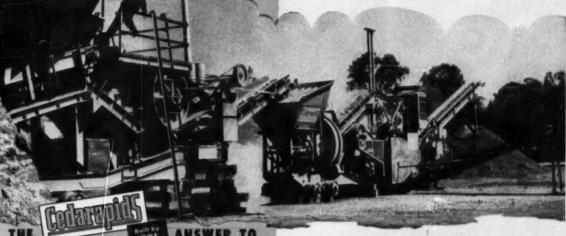


THE FRANK G. HOUGH CO. . LIBERTYVILLE, ILL.



#### HOW TO:

- Utilize all the material...previously rejected oversize, boulders, big quarry rock
- Produce more specification aggregate from any pit or quarry
- Get the capacity and flexibility to handle a wider range of contracts



#### PRIMARY CRUSHING PROBLEM

Whetever your pit or quarry conditions... too much ever-size, abrasive gravel or rock, wet or sticky material . . . there's a size or type of Cedarapids Portable Primary to help you get more profit out of your crushing operations. The plant shows above is a standard Jaw Crusher unit with a vibrating grizzly and can be used ahead of a gravel or rock plant.



VIBRATING GRIZZLY is especially effective where there is a high percentage of fines, or wet, sticky material. Bypassing fines prevents choking of the law crusher, reduces wear on the of the primary



WIN JAW CRUSHER increases production up to 40% over single jaw primary units. It gives excellent results in conditions where the rock or gravel is highly abrasive.



DOUBLE IMPELLER IMPACT BREAKER assures exceptionally assures exceptionally high preduction of cubi-cal shaped aggregate. Like all types of Cede-ropids primary units, it can profitably be used in either portable or stationary applications.

### ADD A CEDARAPIDS PORTABLE PRIMARY to your present equipment

 Here's the way to get the jump on competi-tion! Simply add a Cedarapids Portable Primary Crusher to your crushing plant for a set-up that can't be out-produced in any pit or quarry, as far as profitable operation is concerned.

With a Cedarapids Portable Primary handling the heavy crushing load, you can turn 100% of pit run material into specification product . . . re-open old gravel pits considered unworkable due to large boulders or high percentages of oversize. You can produce crushed rock from quarries near the job, if local gravel deposits are exhausted, and reduce hauling costs.

In any condition, with a Portable Primary you can crush oversize impossible to crush before and obtain more balanced production and greatly increased output.

Ask your Cedarapids distributor to recommend the size and type of Portable Primary that will turn your most difficult jobs into a high-profit operation.

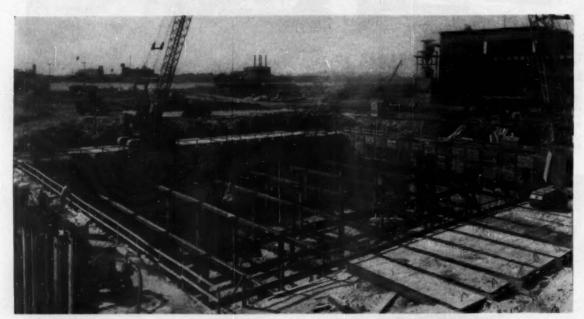
> IOWA MANUFACTURING COMPANY Cedar Rapids, Iowa, U.S.A.



SOLDIER-BEAM PILES for cofferdam walls are driven by McKiernan-Terry 10B3 hammer riding on spud lead. Templet guides piles.



OPEN-SHEETING COFFERDAM in which anchorage block for suspension bridge will be constructed is excavated, as spud piles are driven inside to support three levels of steel cross-lot bracing. Deep-well pump in foreground is one of six spotted around cofferdam.



SECOND LEYEL of cross-lot bracing is added, as Manitowoc cranes, working on timber mets, continue to excavate material.

Open-cofferdam method paid off when contractor found firm bearing soil 10 ft higher than the elevation indicated by borings.

## Deep-Well Pumps Dewater Open-Sheeting Cofferdams

DEEP-WELL PUMPS and open sheeting have teamed up once again to beat a tough excavation problem.

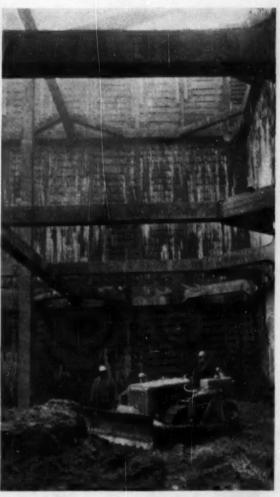
Just south of Philadelphia, huge concrete blocks have been buried deep into the ground on both sides of the Delaware River to anchor the cables of a new suspension bridge. Honeycombed with 16-ft



LOUVERED WOOD SHEETING is placed between the flanges of soldier-beam piles, as the cofferdam is deepened. Salt hay placed behind the sheeting allows any accumulating water to filter through



DEEP-WELL PUMPS driven 20 ft back of cofferdam wall lower water table from -17 to -60. Harry Pagliaro, project manager, inspects one of the Layne 6-in. pumps powered by 20-hp electric motor.



SMALL TRACTOR, a Caterpillar D2, at the bottom of the cofferdam piles material within reach of clamshell. Ice on walls proves louvered sheeting does good job of relieving hydrostatic head.

dia wells, they are 124 ft long, 144 ft wide and about 75 ft deep.

Originally, plans called for constructing the two massive blocks by the drop-caisson method. Underlying material would have been dredged through the wells as the blocks gradually sank of their own weight through saturated ground. However, this method could not have afforded an opportunity to examine the bottom closely because the dredge wells would have been filled with water. Merritt-Chapman & Scott Corp., one of the bidders for the anchorage-block contract, thought there was a good chance of encountering firm bearing soil at a higher elevation than that indicated by borings.

The job estimate, therefore, was based on a method of building up the blocks inside of open-sheeting cofferdams that could be kept dry by deep-well pumps placed around the outside. MC&S got the job for \$3,400,000, \$900,000 below the next lowest bidder.

The open-sheeting method had been used successfully three years before by Harry Pagliaro on the cut-and-cover section of the Norfolk-Portsmouth tunnel in Virginia. (CM&E, Nov. '51, p48) Pagliaro was called in by MC&S to help prepare the bid on the anchorage job, and to direct the work.

Basically, the method consisted of driving steel soldier-beam piles 6 ft apart completely around each area to hold horizontal louvered wood sheeting between the flanges. This open sheeting, placed as the cofferdam was excavated, relieved any hydrostatic pressure so that bracing was required to resist only soil loads. As expected, favorable

ground conditions were encountered 10 ft above the original design elevation. Savings brought about by this reduction in anchorage depth were shared both by the contractor and the Delaware River Port Authority, bridge owner.

The 24-in. soldier-beam piles were driven accurately by a Mc-Kiernan-Terry 10B3 hammer riding on a spud lead. A timber templet helped keep the piles plumb during driving. On the Philadelphia side, where the 10-ft saving in anchorage depth was achieved, the piles were driven 20 ft below the founding elevation. Piles on the New Jersey side were driven 10 ft below.

When the soldier piles were in, the next problem was to place three levels of cross-lot bracing as the inside of the cofferdam was excavated. After the material had

12,587 carloads The Right Wire Rope will do the trick!

# overburden moved with one Tiger Brand Hoist Rope

I MAGINE 12,587 50-ton freight cars strung out end-to-end. They would make a train more than 80 miles long; and if each car was level full, the entire train would contain 1,000,000 cubic yards of material. That's how much overburden this big coal stripping shovel moved with one American Tiger Brand Hoist Rope.

Despite hard digging, a 23%" Tiger Brand Wire Rope lifted and lowered the fully loaded 45 cu. yd. bucket 20,000 times before it had to be replaced. This equipment is used by Central Ohio Coal Company which supplies coal for The Ohio Power Company's new Muskingum River electric power generating plant. This company also uses Tiger Brand Wire Rope on its 18 cu. yd. shovels.

You will like Tiger Brand, too. It lasts long in any type of service.

Send the coupon for our recommendations of the right rope to use on your machines.

This 18 cu. yd. electric shovel and the 45 cu. yd. job shown on the opposite page are stripping overburden 3 shifts a day every day at Central Ohio Coal Co.'s big Muskingum Mine near Zanesville, Ohio. Tiger Brand Rope is giving excellent service on both these hardworking machines.



Regular lubrication of sheaves helps prevent excessive wear of the Tiger Brand Ropes on these big machines.



AMERICAN STEEL & WIRE DIVISION, UNITED STATES STEEL CORPORATION
GENERAL OPPICES: CLEVELAND, OHIO

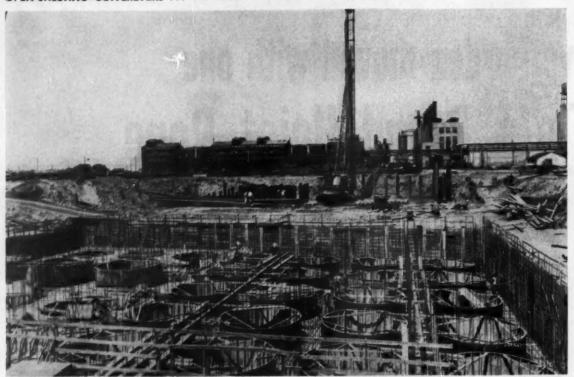
COLUMBIA-SENEVA STEEL DIVISION, SAN FRANCISCO . TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA., SOUTHERN DISTRIBUTORS

U·S·S AMERICAN TIGER BRAND WIRE ROPE

Excellay Preformed

Preformed

UNITED STATES STEEL



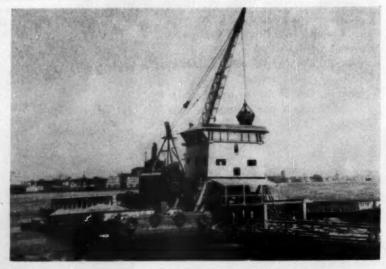
CONCRETE FOR ANCHORAGE BLOCK is poured in 5-ft lifts around 3-piece cylindrical plate forms. Monotube piles driven in

background will support dead weight of distribution block until suspension cables pull on anchorage block and relieve stress.

been removed to the required depth, the first level of bracing was assembled inside the cofferdam on the ground surface. At each intersection, 12-in. spud piles were driven through the earth at least 10 ft below the founding elevation. The piles then were welded to the bracing to support the top level after the earth was removed.

Manitowoc cranes with clamshell buckets excavated the material inside as workmen placed the louvered sheeting between the inner flanges of the soldier beams. Salt hay was placed behind the 4x6 wood sheeting to allow any water accumulating behind the sheeting to filter through. The other two levels of cross-lot bracing were installed as the excavation was carried down.

The plan worked well, largely because of the effectiveness of the deep-well pumps. Six 10-in. wells spotted 20 ft back of the cofferdam walls were sunk 25 ft below the founding elevation. Layne 6-in. pumps powered by 20-hp electric motors lowered the water table from -17 to -16, keeping the cofferdams dry at all times. When dewatering first started, up to 4,000 gpm were removed. Later, the rate of discharge leveled off at 2,000 gpm.



FLOATING CONCRETE PLANT shuttles back and forth across river to pour both anchorages. Two 8-in, Pumpcretes place a half-lift in one day.

The deep wells were sunk by the same methods used on the Norfolk tunnel. Drill cuttings were analyzed to determine the location of porous layers so that stainless steel or bronze screens on the pipe could be tailor-made to draw water at the proper depths. At least 50 ft of screen was used in each well,

plus a 5-ft screen near the top to catch all surface drainage. (A dry surface was important to support a timber-mat platform around the outside on which the cranes operated.) To flush the screens, the pumps were turned off and water allowed to run back down through the wells. (Continued on page 76)

# 18' of water lowered to rock

### by WELLPOINTS

on Ledyard Dam in Groton, Connecticut



Boulders piled on left came out of this core trench excavation!

Fred Onuparik, contractor of New London, Conn., made headline progress on this difficult job. His problem was to excavate to bedrock 20' of material consisting of coarse sand, gravel, and boulders—plus 18' of water.

It took only one week to install a Moretrench Wellpoint System in this rough ground.

Pumping started at twelve noon.

At 4 P.M. on the same day, the contractor had two  $2\frac{1}{2}$  yard shovels digging "in the dry".

### **EXCAVATION WAS COMPLETED SIX WEEKS AHEAD OF SCHEDULE!**

When you want to move fast on a wet job, predrain it with a Moretrench Wellpoint System. Leading contractors have been proving for years that it saves time and money. Our catalogue pictures many types of dewatered construction projects. A copy is yours on request.

MORETRENCH CORPORATION

90 West St. New York 6 4900 S. Austin Ave.

7701 Interbay Blvd.

315 W. 25th St. Houston B, Texas

Rockawa New Jers

Western Representative: Andrews Machinery of Washington, Inc., Seattle 4, Washington
Conadian Representative: Geo. W. CROTHERS Limited, Toronto, Ontario



### Never Needs Resharpening! Lasts Four Times Longer Than Ordinary Blades!

You save three ways on the new SKIL Two-Way Blade:

- 1. You get four times as many cuts!
- 2. Three to four costly resharpenings are eliminated!
- 3. Down-time is considerably reduced!

The SKIL Two-Way Blade is a new, cost-cutting development in circular saw blades. Top quality throughout, of specially-treated alloy steel, 50% harder than ordinary blades. Teeth of patented design are precision-ground, uniformly-set. Special no-glare rust-resistant finish. Constant diameter maintained throughout blade life for uniform cut-depth. Controlled cutting performance under toughest job conditions. Test the SKIL Two-Way Blade on the job today!

For SKIL Saws Only! Another Example of Your SKIL Tool Improvement through Improved SKIL Accessories!



Made only by SKIL Corporation, formerly SKILSAW, Inc. 5633 Elsten Avenue, Chicago JG, Illinois SBIL Dundies Street West, Torosta 9, Ostario Factory Branches in All Leading Cities

	ration, Dept.	CME-124 icago 30, Illinois
☐ I would		ration and free trial
Please		ure on the new SKIL
Name		
_		
Company		
Street		

REVERSIBLE! Unique tooth de-

sign cuts either way, gives twice

the cutting edges! May be re-

SELF-HONING! Trailing tooth-

edges are honed while leading

edges cut. Always a sharp cutting

DISPOSABLE! More than four

times longer life! Saves on needless

resharpening! Low cost makes disposal practical when worn out!

edge ready for instant use!

versed again and again!

### OPEN-SHEETING COFFERDAMS . . .

As each cofferdam was finally bottomed out, a thick concrete mat was poured for the base of the anchorage. In the Philadelphia cofferdam, a 10-ft-thick base was poured over the entire area in 96 hr straight. A different system was worked out for the 9-ft-thick base in the New Jersey cofferdam on the other side of the river. Here the area was broken into seven strips, and one strip was poured each day for seven days.

Forms were required only for the 16-ft-dia vertical lightening holes. Three - piece cylindrical plate forms, made by Concrete Form Corp., were supported on 3-in. angles anchored near the top of the lower lift with 1¼-in. bolts. The form's 3/16-in. skin plate was backed by 2½-in. angles.

To prevent the concrete from bonding to the soldier-piles, which would make it impossible to extract them later, corrugated metal panels were placed against the walls of the cofferdams. The panels also carried any wall seepage down to the subgrade to keep it from mixing with the concrete.

### Shuttle Plant

All concrete was placed by two 8-in. Pumpcrete machines mounted on a floating batching and mixing plant. Pours were scheduled so that the plant could shuttle back and forth across the river.

MC&S made up a new 50x135-ft floating plant for the job with a capacity of 130 yd per hr. Aggregates were picked up by Wiley Whirley clamshell and dumped into bins on top of the plant. Cement was transferred from a covered scow to the hopper with a Fuller-Kenyon pump. Water for the mix was pumped up from the hold, which had a storage capacity of more than 30,000 gal.

Batches were weighed manually and dropped into two Koehring 2-yd mixers, one for each Pumpcrete machine. Gasoline engines powered the pugmills in the Pumpcrete hoppers. Electric power for the plant was supplied by two Caterpillar D375 diesel-electric sets.

Supervision for Merritt-Chapman & Scott Corp., New York, is in the hands of Harry E. Pagliaro, project manager; Joseph L. Rubin, project engineer; and John T. Mills, superintendent. Homer R. Seeley is project engineer for Modjeski & Masters and Ammann & Whitney, consulting engineers.

# powerfully mixed payload



PHOTO COURTESY T. L. SMITH COMPANY, MILWAUKEE, WISCONSIN

### CHRYSLER POWER PARTNERS help contractors break records, save on equipment while doing so

This year promises to be a record year in highway construction. From coast to coast States are busy building super highways, planning others. Construction equipment was never busier, top-performing equipment never more important.

Here's a T. L. Smith 51/2-yard Deluxe Mixer pouring concrete for a pier on a Los Angeles expressway. Behind its capable performance is a Model 30 Chrysler Industrial Engine. At 230 cubic inches piston displacement, Chrysler Model 30 Engine with chain drive front end offers high-speed performance in a package small enough to permit the largest possible payload.

Chrysler gýrol Fluid Coupling transmits power from driving to driven members, smoothing out the jarring shocks of clutching and declutching, improving performance and extending life of equipment, engine and transmission.

Whether your equipment requires gasoline, natural or L-P gas burning carburetor engines, gear or chain drive front-ends, gýrol Fluid Coupling, Chrysler torque converter, 3, 4 or 5-speed transmission, vertical

or horizontal magnetos, Chrysler can supply industrial engines equipped to your needs. And since Chrysler production-line methods are adapted to specialized industrial engine building, custom-built engines are provided at mass-production prices.

For your needs see a Chrysler Industrial Engine Dealer or write: Dept. 912, Industrial Engine Division, Chrysler Corporation, Trenton, Michigan.



### HRYSLER Industrial Engines INDUSTRIAL ENGINE DIVISION . CHRYSLER CORPORATION











AGRICULTURE . INDUSTRY . CONSTRUCTION . OIL FIELDS

# CONCRETE MIXING AND PLACING

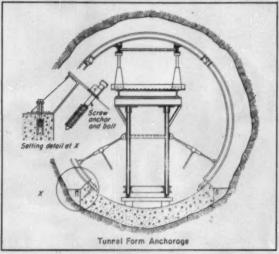


Fig. 23 . . . TUNNEL FORM ANCHORAGE to the invert already poured. Such forms are used repeatedly for successive pours.

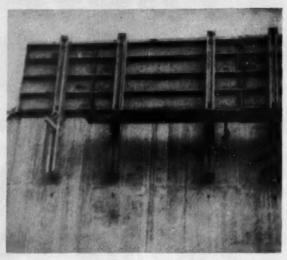


Fig. 24 . . . STEEL CANTILEVER FORMS developed by Blaw-Knox in common use for 5-ft lifts in mass concrete dam construction.

### 10b. How to Plan Forms in Detail

BY ALAN H. PILLING and MARTIN W. BOLL

### **Special Formwork**

 On tunnels, steel forms are commonly used, designed for specific contour of the tunnel and reused continuously for successive pours along its length. Such an installation, shown in Fig. 23, illustrates the steel arch forms of a tunnel anchored to the invert, which has already been poured, utilizing steel rail and screed forms anchored to curb benches.

Uniformity of the tunnel sections and the possibility of numerous uses, normally not less than 25, provide for speed and economy with these special steel forms. Long, repeating wall sections in

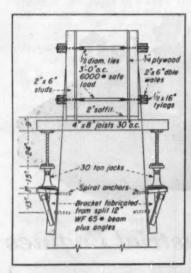


Fig. 25 . . . FALSEWORK ANCHORS In piers simplify form building and leveling on top. Screw jacks, steel beams help.

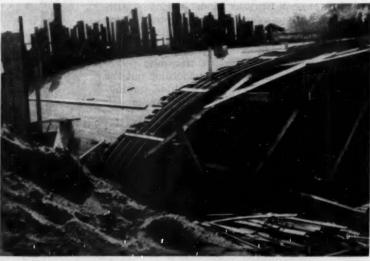


Fig. 26... ARCH BRIDGE FALSEWORK requires detailed planning and construction to get necessary contours into forms and sufficient support for load to be carried. Planning also must include information on maximum rise of concrete in forms per hr.

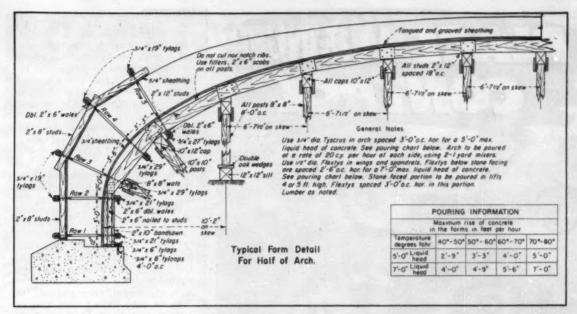


Fig. 27...TYPICAL FORM DETAIL, as sketched for half of a bridge arch. Form ties are placed to assist in support and alignment at critical points. A lot of heavy lumber goes into a big job like this,

and it is important not to cut or notch supporting members, to avoid weakening the frame. Colder temperatures will call for reduced pouring rates.

heavy construction are also adaptable to specially designed steel forms of similar nature.

Steel cantilever forms, as developed by Blaw-Knox Co., have been in common use for 5-ft lift forms in mass concrete dam work.

These forms, illustrated in Fig. 24, are designed for one-point anchorage in the preceding lift by special spiral anchors and have an adjusting feature which permits control of alignment at the top edge of the form. They have been used ex-

tensively and proved effective and economical.

 Falsework forming can be aided materially in many cases by the use of brackets anchored to pier and column shafts, rather than by

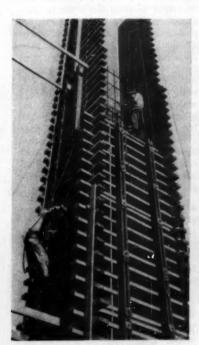


Fig. 28 . . FULL HEIGHT COLUMN form under construction. Note panel corner arrangement detail and well tied wales.

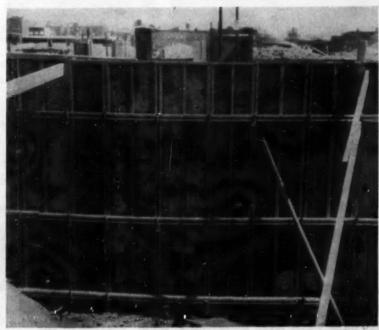


Fig. 29 . . . HOUSING PROJECT FORMS in New York City where reinforced concrete is the rule. These panels used by Driscoll Moccia Construction Co. are 4 ft wide, 12 ft high: minimize wales but allow for rapid pours. Twelve-ft walls are poured in 4 hr.



The placing of a bucket in a narrow trench or caisson; or between closely spaced cribbing requires skill.

Whether it "lands" properly to assure efficient digging is largely a matter of correct bucket design.

Many an operator prefers Owen Buckets because they respond readily to his efforts — go where he wants them to go — and land in unseen places in an upright position ready to take a tremendous bite.

It's largely a matter of design — proportioning and balance, all of which are built into every Owen Bucket as a result of decades of "know-how" based on specialized experience.

### THE OWEN BUCKET CO.

6020 Breakwater Ave., Cleveland 2, Ohio

BRANCHES: NEW YORK, PHILADELPHIA, CHICAGO, BERKELEY, CALIFORNIA, FT. LAUDERDALE, FLORIDA

### CONCRETE . . . Continued

placing reliance in high posting or falsework which is expensive and has a tendency to settle. Brackets can be anchored to pier shafts by spiral anchors, and the spandrel beam can be supported 50 ft or more in the air at little expense and difficulty. Fig. 25, page 78, shows how it is done by brackets, adjustable screw jacks, steel beams and conventional formwork.

• Arch bridge falsework and forms are illustrated by photograph and sketch Fig. 26 and Fig. 27, p. 78. Fig. 28, p. 79, is a spectacular shot of a full height column form under construction.

There are also various form panel systems made of all wood, all steel or a combination of both, available from manufacturers of such equipment. (See addenda, in January 1955 issue.) Our data on wall forms is limited to forms built by contractors, because the great bulk of formwork for ordinary wall forms is designed and built by the contractor on the job or in his own shop.

- New York City housing projects are designed and built of reinforced concrete. P. L. Moccia of Driscoll Moccia Construction Co. is a pioneer in form planning as applied to this type of work, and all wall and slab conditions are carefully worked out prior to construction. Fig. 29, p. 79, and Fig. 30, p. 82, show this current treatment of wall forms. Mr. Moccia pretests his panels by actual pours of concrete under representative conditions. The panels shown are 4 ft wide x 12 ft high and minimize wales to the point necessary for alignment and strength required by rapid pours. Walls 12 ft high are poured by crane and bucket in 4 hr. Note the use of 11/4x4-in. framing where members are double, as compared with 2x4s for single members.
- The New York State Thruway provided many form problems for the contractors who built the more than 400 bridges along its scenic route. A particularly good heavy form is illustrated in Fig. 31, p. 82, built by Corbetta Construction Co. for use on heavy river pier and abutment walls just south of Kingston. Forms were built 8 ft long, 20 ft high from ¾-in. plywood, 2x6 studs, 12 in. o.c., and 3x6 double wales. 12,000-lb ties were used, all 4 ft o.c. horizon-

(Continued on page 82)



You don't have to DIG for the facts. They will be sent at your request.



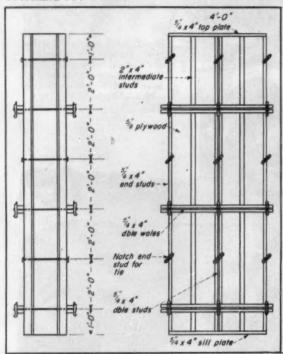


Fig. 30 . . . HOUSING PANELS IN DETAIL. Note use of 11/4x4-in. framing where members are double, as compared with 2x4s for single members, a saving on materials and weight.



Fig. 31 . . . BRIDGE ABUTMENT FORM on New York Thruway built in panels 8 ft wide and 20 ft high from ¾-in. plywood, 2x6 studs, 3x6 double wales and 12,000-lb ties.

(Continued on page 86)



# a NEW WAY to fasten metal to wood



or concrete!

with

DRIVE-IT

Over 6000 Drive pins were used to install aluminum window frames to structural steel and concrete walls of the new Jefferson Hospital extension in Philadelphia, Pennsylvania.

Architect: Vincent Kling. Contractor: Wark & Co. Drive-It Tools: F. H. Sparks and Co.





DRIVE-IT 320

BREAK-OPEN ACTION

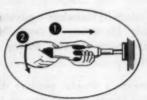
Snap open action results in the fastest operating tool on the market. Easiest method to load and eject eartridges under any condition.



Drive pins are Underwriters' Laboratories approved.



Controlled Power. First and only tool which requires but one standard power load regardless of penetration desired. No need to buy and stock various strength power loads.



SEND

THIS

FOR FULL

DETAILS

Three-way Safety. Cannot be discharged accidentally, due to the push and turn firing sequence. This, plus the large, swivel safety pad, makes DRIVE-IT triple safe.

More fastenings per hour with this speedy way of loading and ejecting cartridges.

DRIVE-IT

the original POWDER-ACTUATED TOOL

POWDER POWER TOOL CORP.

Dept. 1, 7526 S.W. Macadam Ave., Portland 1, Ore.
Canada Ammo Power Tool Co., Ltd.
735 Broadway, Vancouver, B. C.

☐ Please send FREE catalogue and literature.
☐ I want a FREE demonstration of DRIVE-IT.

Name

Street

City\_\_\_\_State\_\_\_\_

# FOR THAT EXTRA MARGININ SHOVEL PERFORMANCE...

WARD LEONARD ELECTRIC EXCAVATORS

MORE OUTPUT even under the toughest conditions . . . more loads per shift in any kind of digging . . . extra loads for that EXTRA MARGIN in performance . . . that's what you get from this exclusive combination of shovel front-end features:

- 7. TWO-SECTION BOOM provides maximum strength with minimum weight. The lower section is rigidly connected to the A-frame . . . takes the heavy stresses of the digging cycle in stride because it is part of the main machine.
- 2. TUBULAR DIPPER HANDLE is much lighter than equivalent two-member handle, yet amply strong. Its ability to rotate in the rubbercushioned saddle block eliminates torsion during the digging stroke, minimizes shock loads.
- TWIN DUAL HOIST ROPES assure a steady, positive digging action
  with automatic shift of hoist power to that part of the dipper lip
  where it is needed.
- INDEPENDENT ROPE CROWD is simple, positive and quiet. Shipper shaft pinions and handle racking are eliminated. Crowd machinery is located on main deck rather than on boom — swing inertia is reduced, the operating cycle speeded up.
- QUICK CONVERTIBILITY to dragline of the independent motor type.
   Hoist and drag functions are powered by separate motors, eliminating operating clutches and brakes.

These features — plus many more — make Bucyrus-Eries the finest heavy-duty excavators ever built: yard for yard, dellar for dellar, pound for pound. Write today for complete information on the 4½-yd. 110-8, the 6-yd. 150-8, or the 8-yd.

### Bucyrus-Eric Company

SOUTH MILWAUKEE WISCONSIN

# STATIONARY AGGREGATE PLANTS Engineered to the Job

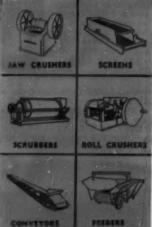
Engineering News Record Photo

"Complete package" stationary crushing, screening, washing and loading plant designed and built by Universal for Niagara-Mohawk Power Corporation, Potsdam, New York.

Let Universal solve your aggregate problems with a Top Capacity "Engineered to the Job" plant for maximum profits. Take advantage of Universal's 50 years experience in the designing and building of all types of crushing, screening, washing and loading installations.

You'll get a right combination of high production capacity basic units. Your crushers, feeders, screens, bins, conveyors and auxiliary equipment are matched to meet your individual job requirements. Universal's "Know How" gets that extra margin of production at lowest cost per ton.

Whatever your specification or production requirements, whether you need 50 or 1000 tons per hour . . . Universal builds the plant you want for the best operation. Tell us your job specifications.



### PETTIBONE

UNIVERSAL In Cedar Rapids Since 1906

### UNIVERSAL ENGINEERING CORPORATION

327 8th St., N.W., Cedar Rapids, Iowa

A subsidiary of Pettibone Mulliken Corporation, 4700 W. Division St., Chicago 51, Illinois



-says J. O. ARCHIBALD of Redwood City, California

V The job was clearing 500 acres of salt marsh for crystallizing ponds. To quote, "We selected Lubri-PLATE No. 107 for track and general lubrication and Lubriplate APG-140 for transmissions and final drives. During the entire job there was no replacements of track rollers nor any tie-ups of equipment due to parts replacement or breakage!"

# TYPE OF YOUR MACHINERY, LUBRIPLATE GREASE AND FLUID TYPE LUBRICANTS WILL IMPROVE ITS OPERATION AND REDUCE MAINTENANCE COSTS.

LUBRIPLATE is available in grease and fluid densities for every purpose... LUBRIPLATE H.D.S. MOTOR OIL meets today's exacting requirements for gasoline and dieselengines.



For nearest Lubriplate distributor see Classified Telephone Directory. Send for free "Lubriplate Data Book"...a valuable treatise on lubrication. Write Lubriplate Division, Fiske Brothers Refining Co., Newark 5, N. J. or Toledo 5, Ohio.



CONCRETE . . . Continued from page 82

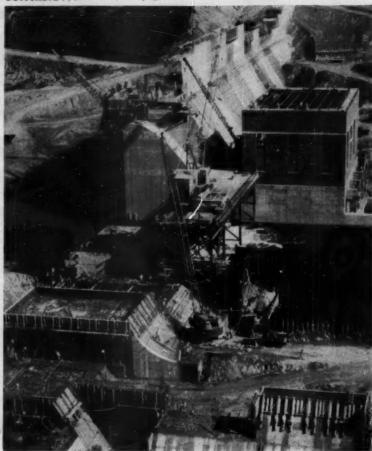


Fig. 32... SUCCESSIVE MONOLITHS on big dam (Shepaug Dam in Connecticut) are poured inside cantilever lift forms which are used repeatedly. This is rough service, usually continuing through several seasons, and calls for good maintenance of equipment.

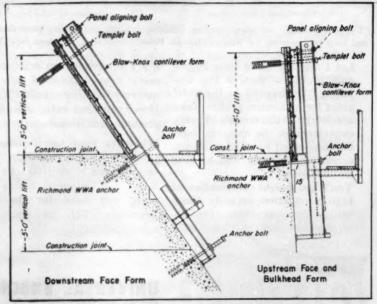


Fig. 33 . . . MAKEUP of typical Blaw-Knox cantilever form supplied for dam builders. It is supported by anchors incorporated in lifts already poured and has a panel-aligning bolt at the top. These forms are raised one 5-ft lift at a time, carry work platforms.

tally to permit easy placement of concrete.

The light colored washers and bolts shown are used only to attach the heavy wales rigidly to the form by a unique "wale holder" spiked to the studs. Form tie bolts and washers in darker color are not yet in place but are attached to the wales with plywood holder. This permits storage without loss between usage and during movement from place to place.

• Heavy construction comes in for its share of form planning and a mass concrete dam project, such as the Shepaug Dam, built for Connecticut Light and Power Co. by United Engineers and Constructors, Inc., is dependent for progress on successful application of panel forms. Fig. 32, (opposite page) is a general view of this project. Blaw-Knox cantilever lift forms were utilized to pour the successive monoliths making up the complete structure. Fig. 33, (opposite) shows the general details of these cantilever forms for upstream, bulkhead and downstream faces. Forms fully cantilevered are anchored to the lift below and raised one 5-ft lift at a time.

The thirteenth article in this series will appear in the Jenuary 1955 issue.

### **Rules for Safety Last**

The League of Safety LAST offers the following membership rules.

- 1. Never think of the other fellow. This shows a high degree of independence.
- 2. If you work around machinery, the best way to improve your surroundings is to get drunk.
- 3. Do all scuffling and horse-playing near holes, open elevator shafts, stairways or windows.
- 4. Always use weak, rickety scaf-folds to work on. This is much more attractive since the war, as wheel chairs are not so costly as formerly.
- 5. If you are a foreman and a workman suggests a safety device for a machine, forget it.
- 6. Don't let anybody slip the old bunk to you about sanitation, hygiene or cleanliness. There's nothing to it. Be as dirty as you want to. Look how healthy a hog

# **Pick the right** MOST ADVANCED line of hydraulic jacks



EXAMPLE: 50-ton model GB-11 fits into cramped quarters — is one-man op-erated. Note short handle. following are other







### The MOST EXTRAS - and the MOST COMPLETE line -1½ to 100-ton capacities

Major jack users soon discover the completeness of Blackhawk's line completeness of Blacknawks line means you can quickly get the right jack for the job. And their experience has proved that the most dependable, longest lasting hydraulic jacks are built by Blackhawk. What's more—after a long productive life—it's easier and less costly to replace worn easier and less costly to replace worn parts on a Blackhawk and get it back in full action in a hurry.

There are many reasons for these long-range advantages

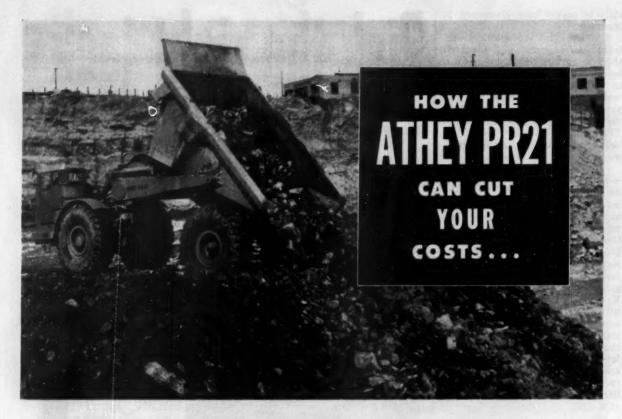
· Over 50 well-equipped authorized repair stations assure repair service

- whenever you need it.
- 68% of all replacement parts are now interchangeable among the most popular Blackhawk models New designs give Blackhawk Jacks even greater dependability

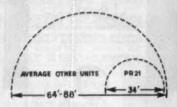
So — standardize on Blackhawk Jacks now. Order from leading supply houses everywhere

this FREE "Idea Beek" how others do cest cutting is with Blackhawk Jacks to for 64-page "Idea Book" catalon Blackhawk Mis-





### ... SHORTER TURNING DIAMETER ...

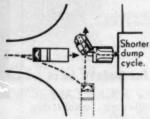


### DRIVE WHEELS AHEAD ...

Eliminates bogging down on fill edge.



### BETTER MANEUVERABILITY ...



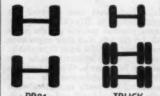
### BETTER TRACTION AND GRADABILITY . . .

Near equal weight distribution puts ample weight on drive wheels regardless of grade. puts ample



### ... LESS RUBBER ....

Plus interchangeability means lower hourly cost.



### SIMPLICITY ...

Short coupled . . . Matched design.



Cat DW21 Power Train



Truck Power Train



see the complete PR21 story... send for your free copy of the booklet, "More Trips Per Hour, More Yards Per Day, More Profits Per Job", Form No. 1014. It's loaded with facts that can help you cut your costs. Write today!

### ATHEY PRODUCTS CORPORATION

5631 West 65th Street • Chicago 38, Illinois

# Any Way You Figure It-dragline yardage - days in service-total cost per yard



Draglines operate under conditions that impose a combination of abuses not encountered in other rope service. The structure of Tuffy Dragline adapts itself to this special job. Tuffy's outer layer of wires offers the largest possible area to resist abrasion. Tuffy's inside structure is such as to give plenty of flexibility in casting. As a whole, this combination of pre-shaped strands gives extra-ordinary strength to withstand digging shocks and heavy line pulls.

Whether you're handling wet or dry dirt, sand, gravel or rock, Tuffy Draglines offer a way to cut rope costs substantially—enabling you to bid a little closer against tightening competition.

No More Complicated Specifications to cause confusion in ordering! Just state length, diameter and "Tuffy Dragline!" See for yourself how Tuffy can move more material for you for a longer time!





# Scraper Rope Plenty flexible to withstand sharp bends . . . plenty stiff to resist kink-

withstand sharp bends . . plenty stiff to resist kinking when slock . . plenty tough to withstand drum crushing.



Designed for hoist line use on all types of cranes, derricks, and clamshells. Tough, flexible, passes safety checks longer.





### Tuffy Dozer Rope A glutton for pun-

A glutton for punishment on small winch drums and small sheaves. Available in ½ and 9/16 in 150'

### Tuffy Slings

Extra flexible, extra strong because of a patented, 9-part, machine braided wire fabric construction.



union



2270 Manchester Ave. • Kansas City 26, Mo.

Specialists in High Carbon Wire, Wire Rope and Braided Wire Fabric



TERMINAL SECTION of laminated timber erch is balanced in midair by 25-ton Link-Belt crane, as workmen guide it into foundation socket. Opposite end will be left to rest en T-shaped Safway steel

tower built up with unit frames approximately 55 ft high. Archsection weighs 7,000 lb, was designed and fabricated by Timber Structures, Inc., Portland, Ore,

### Builders Use Crane, Towers to Erect Arches

• Nine laminated wood arches create a clear span of 190 ft and a maximum height of some 64 ft in the Union College field house, Schenectady, N. Y. Dimensions of the building are 198x210 ft. Each of the three-section timber arches is 254 ft long, has a cross-section 11x40 in. Wood joists, sheathing and built-up roofing cover the arches. End walls are of wood construction and side walls to the eaves are of concrete block. General contractor is McManus, Longe, Brockwehl, Inc., Albany.



HEAVY JOIST IS BROUGHT UP to link terminal section with adjacent completed arch and steady it, while other two sections are being placed, and before the roof joists are tied in. Arch end rests on top of scaffolding tower.



CENTER SECTION IS EASED into place between steel connecting straps extending from ends of terminal sections. Upper ends of terminal pieces are blocked safely on the towers and elevated to exact

alignment by four screw jacks incorporated in the top supporting frames of the Safway towers. Upon completion of the arch, jacks were lowered and scaffolds rolled to next position.



SOLID TIMBER GIRTS and prefabricated braces are hoisted up and belted to the arches to carry the roof, on a tangent from the arches, to the concrete block wall that sets the height of the eaves.



ROOF JOISTS are raised directly into place by block and falls hung on steel masts that clamp to joists already placed. This is upper level of arena which will have a 1/10-mi track.



### SELECT-A-NOTCH

It's easy for one man to adjust cutting head-to desired height for cutting any size material. Weight of head is supported by connecting bar. Clipper's deepseating Notches always guarantee true cutting head alignment—as-sure maximum blade life and increased production. Clipper patent.



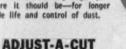


### PRESSURE EQUALIZER

Makes blades last longer because Equalizer Spring automatically cushions blade pressure. A Clipper patent.



Just turn valve to change from wet to dry cutting. Factory-attachedno loss. Factory-sealed bearingsmaintenance. Clipper's patented Water Application supplies water to the cutting edge-just where it should be-for longer blade life and control of dust.



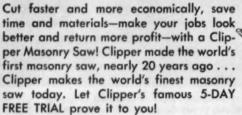
Merely pull knob for finger-tip setting of cutting head angle above material. Release knob to lock in desired position. A Clipper patent.

### **HEAD LOCK**

Just turn the handle to lock cutting head for fixed Diamond Blade cutting. A safety lock when transporting saw as a unit. Patented by Clipper.

Just 5 of 22 Reasons -

4 OUT OF 5 BUY CLIPPER!





SAME

DAY

SERVICE

### FOR BEST RESULTS — USE CLIPPER BLADES

For lowest possible cost, look for the bright orange centers which identify genuine Clipper Superior Blades. Manufactured under rigid controls, assuring you consistent quality and peak

performance, from rim to stub. Clipper alone supplies THE specification for ANY material-Wet Abrasive Blades-Dry Abrasive-Diamond-"CBR' Break-Resistant Abrasive.

BUY THEM IN QUANTITY FOR EVEN GREATER SAVINGS!

### PROFITS CUTTING CONCRETES

Self-propelled\*, and powered for heaviest duty. ONLY CLIPPER offers you the combination of 4 wheels and 3-point, no-bind blade suspension-the only design that cuts a straight line, minimizes blade binding and breakage. Son is easily maneuvered by one man, whether lining up for the cut, or over the curbs. The ONLY SAW with EVERY Feature demanded of a Concrete Saw.

\*Optional feature—All Clipper Models also available without self propelling unit.



ONE OF 7 MODELS FROM \$395

WORLD'S LARGEST MANUFACTURER OF MASONRY AND CONCRETE CUTTING EQUIPMENT

### CLIPPER MANUFACTURING CO. WARWICK . KANSAS CITY 8, MO.

Order Yeur Clipper Saw on FREE TRIAL or Write Today for FREE Literature





Huge rocks are blasted from benches for houling to the spoil area in 22-ten "Eucs" that are working 20 hours a day to meet the 15 month contract doudline.

Gaillard Cut is the narrowest section of the Canal-Contractor's Hill, at left in this photo, threatens to slide into the channel, it is being benched to shift center of gravity away from the Canal.

### Tecon Corp. picked "Eucs" for this big rock job

When Tecon Corp. was awarded the contract for this 2 million yard face-lifting project, they knew they had an urgent and mighty important job ahead of them. If new fissures in Contractor's Hill caused a slide into the narrow channel at Gaillard Cut, the Panama Canal could be closed to shipping for many months.

To meet the 15 month contract deadline, 8500 yds. of solid rock must be moved every day to a spoil area a mile away. Because of their experience with Euclid equipment on other tough

jobs, Tecon chose Rear-Dump "Eucs" of 22 ton capacity. A fleet of nine machines with 300 h.p. engines and Torquatic Drives were rushed to the site and are working 20 hours a day.

On big jobs like this one, as well as on more routine construction and mining operations, the dependable performance of "Eucs" gets more work done at lower cost per ton or yard. Your nearby Euclid dealer will be glad to provide facts and figures on the complete line of Euclid earth moving equipment.

EUCLID DIVISION GENERAL MOTORS CORPORATION, Cleveland 17, Ohio Cable address: YUKLID Code: BENTLEY





### Precision-built for the man behind the gun...



Model 3000 sold complete with tripod.

### White gives you the most practical **Universal Level-Transit** on the market

HERE'S a Universal Level-Transit specially developed to handle all survey and checking operations. It's sturdy, accurate and exceptionally easy to use. And - a new single truss standard frame design replaces oldstyle cross bars and wyes. What's more, it has a silvered 41/4" horizontal circle and an easy to read 5 minute vernier.

Other advantages of this outstanding instrument include coated optics, internal focusing and a ball-bearing race for smooth operation even in sub-zero weather. Check out a White on your next trip and discover how much easier your work can be. Write for **DAVID WHITE Bulletin 1053** and name of nearest dealer, 343 W. Court St,. Milwaukee 12, Wis.



We offer expert REPAIR SERVICE on all makes, all types of



### **Vibrating Roller Densifies Granular Fills**

A VIBRATING ROAD ROLLER that weighs only 3 tons is proving to be an effective tool for compacting granular fills.

Introduced by Vibro-Plus Products, Inc., the CH30 consists of a 4ft dia steel roller with a 25-hp Waukesha diesel engine mounted on its frame. Power is transmitted by V-belts to independent races that rotate two balls in opposite directions inside the barrel of the roller. At 1600 rpm, the balls produce a direct downward centrifugal force of about 7 tons.

Several of the first units made are working on sections of the Garden State Parkway in New Jersey. Contractor S. J. Groves is compacting difficult fills with a CH30 pulled by a Caterpillar D4 tractor. Superintendent Gus Zimm is enthusiastic about the unit because it is economical to operate, requires few passes to get the required compaction. and is small enough to reach tight places at structures.

The job's consulting engineers, Fay, Spofford & Thorndike, report that tests on 1-ft lifts of non-plastic silty sand showed 95% compaction after 3 passes and 100% after 6 passes. Vibration, they claim, breaks up the arch-action which ordinarily builds up in a granular soil when it is rolled by static compactors. Best results are achieved when the rate of vibration is near the natural frequency of the material in the fill.

Tests conducted by Prof. R. K. Bernhard of Rutgers University showed that the CH30 had a capacity of 13.69 cu ft per sec at a depth of 2 ft. The material was 80% fine sand, 12% coarse sand, and 8% silt and clay. A Proctor density of 95% at a 2-ft depth was produced after 2 passes. The speed of the roller was 2 mph and the vibration frequency 1,500 rpm.

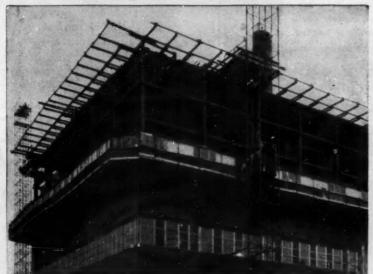
Length of the unit is 11 ft and width is 61/2 ft. Cylinder width is 4 ft 10 in., and the turning radius

15 ft.

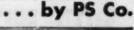
### When Equipment Contacts Power Lines...

- 1. Keep everyone away from rig.
- 2. Caution operator not to leave rig until he has cleared it from wires.
- 3. Call the power company, and keep everyone away from fallen wires. Wires which are apparently dead may be re-energized suddenly.
- 4. Do not touch any person who may be in contact with an electrified rig. Such action will make
- you a casualty, too.
- 5. If you attempt a rescue, use a dry, clean rope or a dry, unpainted pole to remove the victim. Do not make bodily contact with the victim until he is
- 6. After the victim has been cleared from contact, if he is unconscious, and not breathing, begin artificial respiration on the spot immediately.

### **Scaffolding Methods**

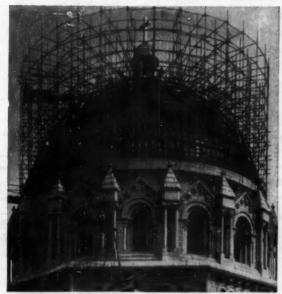


UNDER-COVER WORK—Wintertime construction on this power plant in Romeo, Ill., advances on schedule because "Gold Medal" Safety Scaffolding Machines are completely enclosed to protect masons from freezing weather. "Gold Medal" Scaffolding Machines, supplied by PS Co., are quickly enclosed and heated for warm, weather-tight protection. Plastic enclosures, attached to these scaffolds, not only foil winter cold, but also admit ample light to the entire platform work area. Ragnar Benson, Inc., is the general contractor.





winter overcoat— Full enclosure of the building framework enabled all tradesmen to work through the winter on this Electro-Motive Corp. building in Ashtabula, Ohio. General contractor Walsh Construction Co. used "Trouble Saver" Sectional Scaffolding on entire exterior of 11-story framework, then covered scaffold with 10'x12' homosote panels.



CROWN OF STEEL—A cantilevered self-supporting "TubeLox" Steel Scaffold supplied by PS Co. girdles the 10,000 sq. ft. dome of St. Louis Cathedral, providing safe support for roofing crews. According to roofing contractor Otto C. P. Borger, this "TubeLox" Scaffold cut labor costs 25% and saved 20% on materials.



HOME FOR "DRAGNET"— "TubeLox" Scaffolding had a strong supporting role in construction of this new building for the Los Angeles police force made famous by TV's "Dragnet". A steel web of 71,000 lin. ft. of "TubeLox" supports tile setters' platforms laid flush to wall of this 8-story Police Facilities Building. Joint venturers: Ford J. Twaits Co. and Morrison-Knudsen Co., Inc.

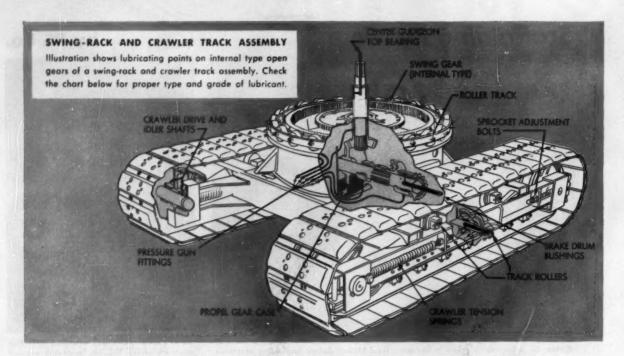
To help you solve any scaffolding problem, PS offers a complete nation-wide engineering service — available locally. See the Yellow Pages in your 'phone book for the nearest Patent Scaffolding office or representative handling

"Gold Medal" Scaffolds.

FOR GREATER SAFETY...EFFICIENCY...ECONOMY



38-21 12th Street, Dept. CM&E, Long Island City 1, N. Y. 6931 Stanford Ave., Los Angeles 1, Calif. Branches in all principal cities



### Where, how and with what to lubricate?

Lubricating procedures and suggested materials discussed on this page represent just one of the many invaluable sections contained in the newest Cities Service EARTH MOVING AND CONSTRUCTION MACHINERY LUBRICATION BOOK. For your FREE copy, write Cities Service Oil Company, Sixty Wall Tower, New York City 5.





FREE: Write today for the EARTH MOVING AND CONSTRUCTION MACHINERY LUBRICATION BOOK.

## LUBRICATION OF SWING-RACK AND CRAWLER MECHANISM Unit How Lubricated Lubricant

Part or Unit	How Lubricated	Lubricant Recommended	Grade No.  0° F. Above to 32° F. 32° F.	
CRAWLER MECHANISM-				
Track rollers, idlers, track wheels, etc.				
Oliver:	Track Wheel System	Trojan Gear Oil	#90	#140
Allis-Chalmers:	Positive Seal Units	Trojan Greåse	P-0	P-0
Others—	10 000			Talket I
Grease Lubricated:	Pressure gun fittings	Trojan Grease	A-0	A-1
	Pressure gun fittings	Trojan Grease	F-3-0	F-2-0
Oil Lubricated:	Hand gun or other means	Trojan Gear Oil	#90	#90 to #250
GEAR DRIVES-			1 1 3	
Open: Normal Condition	By brush or other means	Cisco Compound	#3-Z	#5-Z
Dusty Condition	By brush or bath	Raven Oil	#3	#7
Enclosed:	Bath	Trojan Gear Oil	#90	#140

### Capital Spending Plans for 1955 . . .

# Here is Good News About Business Prospects

In 1955, American industry is now planning to spend within 5 per cent of the amount it is spending this year on new plant and equipment. This is the tensely awaited result of a check-up just completed by the McGraw-Hill Department of Economics.

Hundreds of companies, by far the largest number in the eight-year history of these McGraw-Hill surveys, cooperated in the check-up. Combined, they represent 29 per cent of all industrial employment and over 60 per cent of employment in the industries where capital investment is highest. Such a broad cross section constitutes

### PLANS FOR CAPITAL INVESTMENT

	MILLIONS OF DOLLARS			Percent
	1953 ACTUAL*	1954 ESTIMATED*	1955 PLANNED	1954- 1955
All Manufacturing	\$10,026	\$ 9,249	\$ 8,598	-7%
Petroleum Industry†	4,600	4,875	4,920	+1
Mining	506	380	311	-18
Railroads	1,312	851	769	-10
Other Transportation and Communication	11 2,954	2,922	2,640	-10
Electric and Gas Utilities	4,548	4,274	4,206	-2
ALL INDUSTRY	23,271	21,784	20,727	-5

<sup>\*</sup>United States Department of Commerce; Chase National Bank; McGraw-Hill Department of Economics

a reliable gauge of the plans of industry as a whole.

What is the meaning of these plans, detailed by the table below, for capital investment next year? Is it good or bad news, so far as it concerns the prospect of continuing prosperity? It is to this crucial question that this editorial is addressed.

### **Key to Prosperity**

It is not only good but very important business news that American industry plans to spend in 1955 almost as much for new plant and equipment as it is spending this year. The reason it is important is that a high level of activity in the capital goods industries is universally recognized as a particularly potent ingredient of prosperity for the nation as a whole. A dollar spent for capital goods is spent again and again for wages and materials. Its stimulating effects, called by economists multiplying effects, move through the economy in much the same way that a pebble tossed into a pond creates a widening circle of ripples. This is one reason why there is such intense business interest in the surveys of plans for capital investment.

Here are the principal reasons why the results of the McGraw-Hill survey are a good omen for continuing prosperity:

<sup>†</sup>Petroleum refining, included under both "All Manufacturing" and 
"Petroleum Industry," is included only once in the total

1. American industry is demonstrating that it does not need the stimulus of war-created shortages, or a rearmament boom, in order to maintain a very high level of capital investment.

The slight decrease now planned for 1955 will still maintain a level only about 11 percent below the all-time peak attained in 1953 under the stimulus of a defense expansion boom.

2. Capital investment promises not merely to stabilize at a high level, but actually to increase as 1955 goes on and thus give renewed stimulus to business.

The level of investment now planned for 1955 by industry—manufacturing, petroleum, mining, transportation, communications and utilities—is within 5 per cent of 1954. Contract awards for commercial construction—stores, office buildings, warehouses and other service establishments—as compiled by the McGraw-Hill publication Engineering News-Record, indicate a substantial increase in 1955. Thus total capital expenditures by all business may be very close to this year's total.

Actually, in the fourth quarter of 1954, business capital expenditures, as reported to the U.S. Department of Commerce, are down about 2.5 per cent from the average for the year as a whole. So there is a good chance that during 1955 the annual rate of capital investment will rise above this present level.

### Effect of Tax Changes

The plans reported by the McGraw-Hill survey are preliminary plans, reported at the beginning of the period of business budgeting for 1955. As budgets are completed, new projects may bring the total expenditure that is planned even closer to this year's figure and thus make an even greater contribution to continuing prosperity.

But it also cannot be too strongly emphasized

that these are plans; they are not accomplished investments. As such they have the vulnerability to changed conditions that characterize any plans.

There is some indication in the results of the McGraw-Hill check-up that one change in conditions recently made by the United States government has had an important stimulating effect on plans for business investment next year. It is a liberalization of the allowances for depreciation. Apparently encouraged by this provision, most of the smaller companies are planning to maintain or increase their purchases of new equipment next year, whereas during the past three years their expenditures have been declining. This is obviously a development that strengthens our economy.

A government insensitive to the key importance of capital investment by business, both in providing prosperity and in raising our standard of living, might easily destroy the present plans. One of the easiest and surest means to do this is excessive taxation of business profits which are the key ingredient of business investment. Whether the extraordinarily constructive program recently enacted by the federal government in the field of business taxation can be sustained remains to be seen. If it can be sustained, the remarkably cheering plans of business for capital investment in 1955 can readily become firm foundations for a continuing prosperity.

This message is one of a series prepared by the McGraw-Hill Department of Economics to help increase public knowledge and understanding of important nationwide developments that are of particular concern to the business and professional community served by our industrial and technical publications.

Permission is freely extended to newspapers, groups or individuals to quote or reprint all or parts of the text.

Donald CMcGraw
PRESIDENT

McGRAW-HILL PUBLISHING COMPANY, INC.

# USS HIGH STRENGTH STEEL helps relocate California Highway 99!



'MAKE it strong—yet keep it maneuverable, free from excess bulk..." That's one of the first requirements when it comes to the specification and manufacture of hard-working, heavy-duty earthmovers, like the Hystaway® digger-bulldozer.

And that's one of the reasons why the Hyster Company, Portland, Ore., and Peoria, Ill., selected USS Manten High Strength Steel to give extra strength yet eliminate excess weight in the all-important boom on the Hystaway. This vital part has to be strong, rigid and stress resistant to stand up under day-after-day hard, gruelling service, without failure and frequent breakdowns.

USS Man-Ten-one of the famous USS HIGH STRENGTH STEELS is made to order for jobs like this. This high strength steel has a yield point 50% higher than carbon structural steel and affords high resistance to fatigue, abrasion and impact. You can use USS MAN-TEN Steel to build maximum strength and toughness into vital parts ordinarily prone to failure. With it you can materially increase the strength of parts without increasing their weight. Or you can use this steel in lighter sections and reduce weight without reducing strength or stamina.



ON THE HIGHWAY 99 relocation project near Dunsmuir, Siskiyou County, California, the contractor, A. Teichert & Son, Inc., selected the Caterpillar-Hyster—Hystaway to handle much of the tough drainage excavating job. The Hystaway is ideal for use where confined digging conditions make the full-revolving type machine too difficult to handle. "The Hystaway gets hard-toget-at jobs done in a hurry . . . is the handiest tool on the job," says Adolph Bauer, Teichert superintendent. The Hystaway shown here is mounted on a D7 Tractor, one of the many tractors manufactured by Caterpillar Tractor Co., Peoria, Illinois.

For 20 years our engineers have cooperated with manufacturers of construction equipment in applying these steels. Contact our nearest office and let us show you exactly how you can apply USS MAN-TEN Steel—or one of its two companion steels, USS COR-TEN and USS TRI-TEN—to make your equipment last longer.

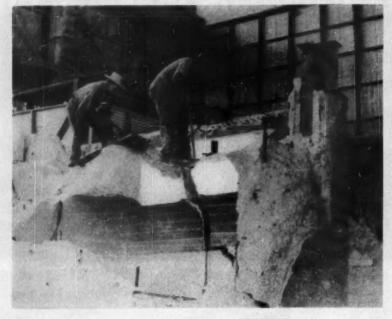
UNITED STATES STEEL CORPORATION, PITTSBURGH • AMERICAN STEEL & WIRE DIVISION, CLEVELAND
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO • NATIONAL TUBE DIVISION, PITTSBURGH
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA.
UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS

USS HIGH STRENGTH STEEL

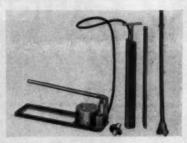


4-207

### Hydraulic Concrete and Rock Buster



HYDRAULIC ROC-JAK breeks off chunk of concrete wall inside power-house without disturbing the rest of the building. Small, hand-powered pump activates multiple pistons which press against concrete with total force of more than 150 tons.



MAIN PARTS of Roc-Jak include hydraulic pump, 24-in. breaker body with 10 pistons, 30-in, equalizing shim, and drill rod.

DESTRUCTION OFTEN PRE-CEDES building on many jobs in the construction field. Destruction or demolition costs of heavy concrete structures in bridge and road widening, overpasses, walls and foundations are of such importance that they might represent the difference between receiving or losing the contract award.

Dynamiting is generally accepted as the quickest and most economical method of taking concrete apart, but on many construction jobs its use is not permitted. The "headache ball" requires plenty of head room and freeway, and the





### **CUT LOADING COSTS WITH FAST-RUGGED EIMCO'S**

Yes! You cut costs when you use Eimcos for loading.

NOTE these advantages:-

Advantage: Eimcos dig and load materials that

are difficult or impossible for other

loading equipment.

Eimcos are designed for tough jobs -Reason: digging and loading rough, broken

rock. Tracks are designed to oscillate freely even with the loader attachment. The bucket design permits digging in frozen stock piles, rough bottoms, heavy ores and in sticky clay

or unbroken conglamerate.

Advantage: Eimcos are more maneuverable.

Eimcos use independent track control. Reason:

Separate levers control each track and one track can be run forward while

the other runs reverse.

Advantage: Eimcos last longer.

Torque converter drive is standard on Reason: Eimcos. All castings are alloy steel,

all construction is extra heavy-duty.

Advantage: Eimcos load faster.

Reason: The overhead principle developed by

> Eimco is faster. Complete cycle is 10-12 seconds. Shifting from high to low on tractor or loader is done in motion. Shifting from forward to reverse can be done at full speed.

Other

Include:

Advantages Better visibility with the operator up front. Easier maintenance with clutches that never need adjustment and elimination of all clutches, brakes and gadgets in the final drive.

Let an Eimco engineer show you how you can cut loading costs on the next job.







### ROC-JAK ... Continued

material cannot be too thick. Use of pneumatic breakers, contractors agree, is costly.

A new method of breaking up concrete is with a multiple-piston hydraulic jack known as the Roc-Jak. Its manufacturer, K. O. Duncan Co., 10515 Lauriston Ave., Los Angeles, Calif., claims this tool will develop a 150-ton thrust, or better, when operated by a hydraulic pump and will readily break off 1- and 2-cu yd pieces. Operation is fast and simple. One man with a medium-weight jack hammer can drill a hole 3½ in.

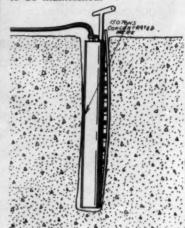
x 2 ft in 10 min. The Roc-Jak inserted in the hole, can make the break in 5 min.

In service, the Roc-Jak is inserted into the drilled hole, a steel shim or feather serving as a bearing surface is put in, and the pump actuated to expand the Jak. After the pistons are in contact with the shim, an additional piston travel of only ½ in. is sufficient to rupture the mass. If the resultant crack is not wide enough to break reinforcing bars or to insert a cable sling, more shims are used.

The business end of this unit is

3 in. in dia and 2 ft long. The main body member is built to accommodate 10 pistons 2 in. long with a 1-in. stroke. The jack with a steel shim or feather weighs 45. lb and the pump another 40 lb. Cost of the unit is claimed to be less than a heavy-duty pneumatic concrete breaker.

As the Roc-Jak is a tool fitted with precisely ground pistons operating under extreme pressure, it cannot be abused in the same manner as an air hammer. The manufacturer sets forth some tips on maintenance and operation of this tool which must be followed if trouble-free and high production is to be maintained.



In order to use this unit properly, the initial drill hole must be straight, round and uniform. If the hole is not true, the body of the Roc-Jak will make contact at the middle section of the hole and only a fraction of the thrust will be available from the hydraulic pump. Damage to the unit itself is possible under these circumstances.

The chief advantage of the Roc-Jak in the demolition of concrete, according to the manufacturer, is the over-all savings possible, as compared with other methods.

### Where and How to Use

These are suggested procedures on different types of demolition jobs using the Roc-Jak.

COLUMN FOOTINGS: If they are round, square or truncated containing 3 or 4 cu yd, dig around three sides of the footing to the bottom. Drill one breaker hole in the top center of the mass, insert the jack and apply the pressure. When a crack appears, relieve pressure, give the jack one quarter turn, and apply pressure again un-





### 10 trucks replace 30 -cut costs 62%

When 10 50-ton trucks equipped with Allison Torquatic Drives replaced 30 mechanical-drive 20- and 30-ton trucks at Sunnyhill Coal Company's New Lexington mine:

Operating costs dropped 18.6¢ per ton, Maintenance costs were cut 13.1¢ per ton.

And the Toromatic-equipped trucks now haul 32.6 more tons per truck hour.

But lower costs are only part of the story.

On-the-job accidents have dropped sharply. Drivers stay fresher, more alert because they now have no clutch pedal to push — quick-shift at full throttle with finger-tip hydraulic control—have only 3 shifts instead of 7 or 10.

Wet weather worries have almost disappeared—road maintenance costs are lower. Smooth power transmission by the Allison Toromatic Drives lets trucks drive through mud and muck—conditions that often shut down the mine before Toromatic-equipped units came on the job.

Big reason for lower operating and maintenance costs is shock-free power transmission by the matched TORQMATIC Converter-Transmission teams. The Converter absorbs shock loads instead of transmitting them along the drive line—protects engine, differential, drive shaft and transmission from damage.

There's an Allison TOROMATIC DRIVE for your 40- to 400-horsepower gasoline and Diesel equipment. New lowcost 40-150 h.p. Toromatic Converters easily fit present equipment, are completely self-contained for simple installation. Get full details about Allison Toromatic Drives from your equipment manufacturer or dealer or write:

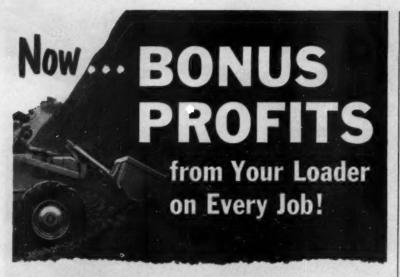
Allison Division of General Motors Box 894T, Indianapolis 6, Indiana

### ALLISON TORQMATIC DRIVES

Unbeatable Team for Maximum
Operating Economy

- Quick-Shifts at full throttle with fingertip hydraulic control
- Holds power to load at all times no clutch pedal to push—no gearshift guess
- Reduces maintenance costs by absorbing shock — eliminates engine lugging — prolongs equipment life
- First torque converter-transmission team designed to work as a unit and built by one manufacturer





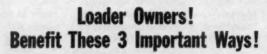
### A Greer Accumulator Assures Faster, Smoother Operation by Reducing Shock on Your Loader

Hydraulic shock and vibration on bucket loaders can make the difference between profit and loss on your construction jobs. Shock usually means increased maintenance, slower loader operation, and operator fatigue.

But now — a simple, low-cost solution to this problem is the Greer

Accumulator. This revolutionary newtype shock-absorber takes the bounce and jounce out of your loader.

Actual field tests, successfully demonstrated to leading manufacturers and dealers, have proven the superiority of bucket loaders with a Greer Accumulator over all others.





2. CUT DOWNTIME! A Greer Accumulator absorbs shock that can damage parts and cause structural strain. Less maintenance means less costly downtime.

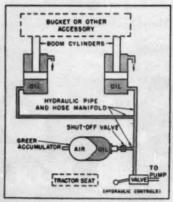
3. STEP UP OPERATOR OUTPUT! A Greer Accumulator frees operator from tiring effects of jolts and vibration. Lets him work at his full capacity.

U.S. PATS. UNDER CLAER LICE.

How the Greer Accumulator Works. The Greer Accumulator, above, is a steel shell encasing a rubber bag pre-charged with gas. Shock forces hydraulic fluid into shell compressing bag. Thus jolts are absorbed by the accumulator instead of jarring operator and machine.

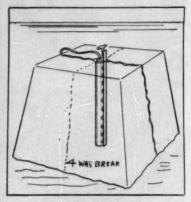
Simple Installation. Typical loader circuit diagram is shown on right. A Greer Accumulator Tractor Kit only requires a hose and T-connection installed by any mechanic between the control valve and lift cylinders.

Act New! For complete details on how the Greer Accumulator adds bonus profits to your construction jobs, see your equipment dealer, or write Greer today for more information.



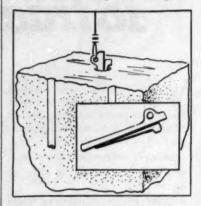
GREER HYDRAULICS INC. . N. Y. INTERNATIONAL AIRPORT . JAMAICA 30, N.Y.

ROC-JAK . . . Continued

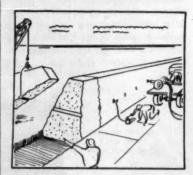


til second crack appears. The four pieces will fall apart for easy loading.

ROCK ANCHOR: A rock anchor is recommended for the removal of broken concrete. In using the rock anchor, a hole 2 in. in dia is drilled 16 in. deep into the piece



to be lifted. The anchor is inserted and a wedge driven in to secure it. The harder it's pulled the tighter it gets, providing a safe method to remove 8- or 10-ton pieces.



WALL OR BARRICADES: The procedure here is to lash a wagon drill on a flat-bed truck and position it to drill through the wall horizontally at the gravity line. Drill



# Stop Effects of SHOCK I

Sinclair HEAVY DUTY BEARING GREASE is a greatly improved lubricant for bearings in power shovels, drag lines, tipples, conveyors and similar heavy duty equipment. It cuts wear by resisting shock, heavy loads, heat and pounding. It stays put — successfully lubricates large, loose-fitting bearings.

Sinclair GEAR PROTECTIVE COMPOUND provides a new high standard in exposed gear lubrication. Extreme pressure additives carry heavier loads — protect against wear. Moreover, this compound stays put, resists throw-off, squeeze-out or peeling.

Sinclair JET LUBRICANT #20 can prolong the working life of your turntables, rollers and roller rails. It is an all-season lubricant that resists squeeze-out — protects costly parts against shock and heavy, constant loads.

A Sinclair Lubrication Engineer can give you expert counsel on how you can get the most out of these cost cutting, time saving lubricants. Phone your local Sinclair Representative or write Sinclair Refining Company, 600 Fifth Avenue, New York 20, New York.

### SINCLAIR LUBRICANTS



### 3 Walers on 16' Wall

Henry Carlson Const. Co. Sioux Falls, S. D., used only 3 walers with Symons Forms on 16' high 12" thick wall for City Water Treatment Plant. 10,000 square feet of Symons Panels were reused 12 times on the job, resulting in savings of labor, material and fast forming.

material and rast forming.

To pour these high walls certain upper panels were raised 1 foot to permit pouring through side openings for the first 8 feet of concrete.

Send the plans for your next job and get complete layout and cost sheets—no obligation, Catalog F-9 available on request. Symons Clamp & Mfg. Co., 4255 Dept. L-4, Diversey Ave., Chicago 89, Illinois.



### tell when PROTECTIVE MAINTENANCE is needed

Powered equipment lasts longer and requires fewer repairs when a definite program of protective maintenance is followed. It pays to know WHEN it's time to change oil, lubricate, inspect, overhaul, etc. The HOBBS HOUR METER tells you when.

### NOT A REVOLUTION COUNTER

. . but an electric timing instrument that shows HOURS and MINUTES of engine operation. Provides the accuracy that's important for genuinely effective maintenance. Now . . . new and improved through continuing engineering research!

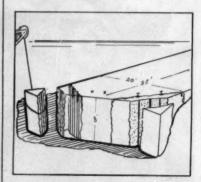
### APPROVED BY LEADING MANUFACTURERS

Installed as original equipment or recommended as an approved accessory by leading construction equipment manufacturers. Built for rough going . . . easy to install. Get full information from your factory branch, representative or distributor, or WRITE;

COIGINATED AND MANUFACTURED EXCLUSIVELY BY John W. Hobbs Corporation YALE BLVD. SPRINGFIELD, ILLINOIS

### ROC-JAK . . . Continued

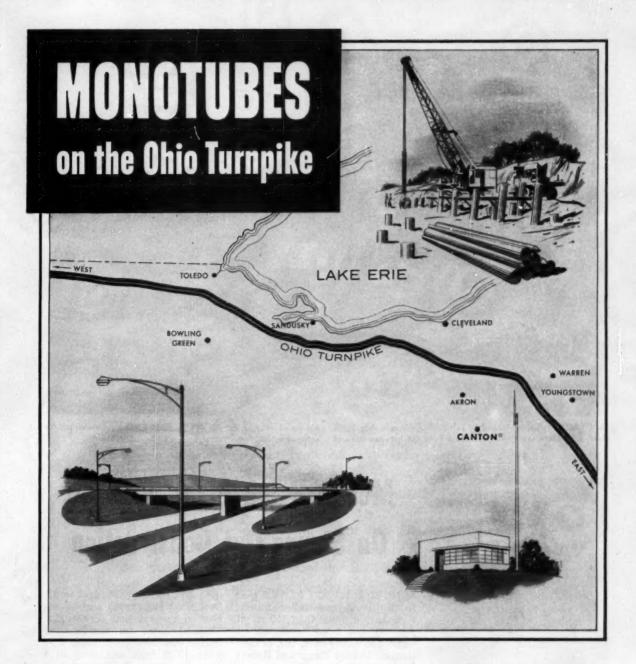
holes every 3 or 4 ft. Insert the Roc-Jak and make the break. The operator should not work more than two holes ahead of the crane lifting out the broken pieces. On an operation similar to this one, 30 holes, 4 ft deep and 4 ft apart can be drilled and "broke" at a cost of \$1 per cu yd.



ABUTMENTS OR ENGINE FOUNDA-TIONS: If they are more than 8 ft wide, 10 ft deep and 20 ft long, they can be broken in two different ways with the hydraulic jack. First, the structure must be opened up on two connecting sides. If two jacks are available, start at one corner and drill 2 holes side by side, 18 in. apart and 31/2 ft from the corner. Then use a 2-in. bit and continue these holes on down to the bottom. This will help the crack to follow on down instead of spalling toward the corner. The next break should be made at the other corner of the 8-ft mass. The third break takes out the section between the corner breaks. Repeat the cycle.

TEMPORARY BULKHEADS: Large bulkheads, column piers and counterweights that serve a temporary purpose and are then removed are in such locations frequently that they cannot be shot or balled down when the permanent structure is completed. To help lower removal costs on this type of job, make a sketch of the number and location of holes necessary to break this piece with jacks. When the forms are built for these temporary works, sections of water-resistant cardboard tubing 31/2 in. dia are tied into the form.

The Roc-Jak will handle scores of difficult demolition jobs in its present size of 150-ton thrust, but if experiments work out, it will soon have a big brother capable of developing more than 300-ton thrust.



ALL along the 241-mile Ohio Turnpike you'll find steel Monotubes—1,322 Monotube lighting poles for entrance plazas and interchanges, 44½ miles of Monotube foundation piles for structures, and self-supporting Monotube antenna masts at each of the 15 interchanges and the

two terminal gateways for radio communication.

Take the tip from leading contractors and engineers . . . specify Union Metal Monotubes. For further information, write today to The Union Metal Manufacturing Company, Canton 5, Ohio.\*

Monotube Lighting Poles Monotube Foundation Piles Monotube Antenna Masts

UNION METAL



READY-MIX TRUCK is charged by belt conveyor from mobile batch plant. Built like a semi-trailer, the plant turns out between 400 and

500 cu yd of concrete per day. A ¾-yd Scoopmobile charges the aggregate bins. Power comes from a 50-kw generator.

# N.C.

BULK CEMENT is carried up from a buried hopper by a screw conveyor and closed bucket elevator on the back of the trailer. A second screw distributes the cement across the bin for greater capacity.

### Mobile Batch Plant Pays Off On Strung-Out Construction

A MOBILE BATCH PLANT that is built like a semi-trailer and has a capacity of more than 400 cu yd per day has been developed by Cupertino Ready-Mix, Inc. of California. Darriel Camp and Robert Soldini, owners of the company, designed the unit for batching concrete on construction jobs that are too far from the company's central plant for economical hauling.

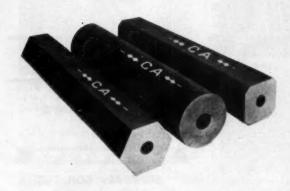
The basic semi-trailer section of the plant consists of a 250-bbl cement bin on the back and a 3-compartment aggregate bin in front. Bulk cement is fed in over the back of the trailer by a closed elevator attachment. Batches are carried out to ready-mix trucks on a conveyor. The elevator, conveyor, and weigh hopper are transported on a separate truck.

After working out the basic design, Camp and Soldini turned over the job of building the plant to the Noble Co. The chassis was assembled by the Fruehauf Trailer Co. Stripped down for moving, the trailer measures 40 ft long, 8 ft wide, 13 ft high, and rests on 4 pairs of wheels. On the site, it is supported by eight built-in jacks which hinge up into the body.

Bulk cement hauled in 125-bbl carriers is dumped into an unloading hopper placed in the ground at the rear of the plant. A screw and enclosed bucket elevator carry the cement to a 9-in. screw that distributes it over the full length of the bin. At the bottom of the bin, dual 9-in. screws carry the cement forward to the 2-yd weigh hopper.

Aggregates are loaded from stockpiles with a ¾-yd Scoopmobile and dumped into the bins. Demountable sides that increase the capacity of the aggregate bins

### TEAMED FOR DRILLING EFFICIENCY....



Crucible CA Double Diamond Alloy Hollow Drill Rods



Crucible HY-Tuf for tungsten carbide bit bodies

Here's a combination you just can't beat . . . detachable bits of Crucible HY-Tuf® alloy steel with tungsten carbide inserts and Crucible CA Double Diamond® Alloy Hollow Drill Rods . . . the toughest, longest-lasting drill steel made.

HY-Tuf detachable bit bodies are made to withstand the terrific pounding of heavy rock drills . . . pounding which no ordinary steel can possibly take. And Crucible CA Double Diamond Rods give you superior drilling performance with minimum rod breakage and bit losses . . . a team that provides the lowest cost per foot of hole drilled.



first name in special purpose steels

54 years of Fine steelmaking

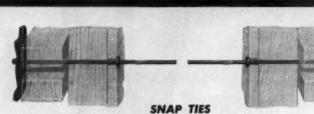
**HOLLOW DRILL ROD** 

CRUCIBLE STEEL COMPANY OF AMERICA, GENERAL SALES OFFICES, OLIVER BUILDING, PITTSBURGH, PA. REX HIGH SPEED . TOOL . REZISTAL STAINLESS . MAX-EL . ALLOY . SPECIAL PURPOSE STEELS

Canadian Distributor - Railway & Power Engineering Corp., Ltd.

# SUPERIOR

All the Accessories For Dependable Concrete Forming!





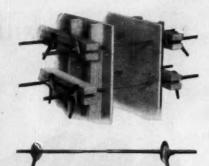
RISERFRAMES



PANEL LOCK BOLTS



ROD CLAMPS



TILT LOCK CLAMPS



STANDARD COIL TIES



CONE-FAST COIL TIES



COIL LOOPS



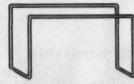
SCREW ANCHORS AND BOLTS



STANDARD HANGER FRAMES



SPECIAL HANGER FRAMES



WIRE BEAM SADDLES



"PICK-UP" INSERTS FOR TILT-UP SLABS

Shown here are some of the many types of Form Ties, Anchors, and other concrete accessories which SUPERIOR'S years of engineering and field experience plus manufacturing dependability have developed and produced.

Every item in the SUPERIOR line is specifically designed to provide the most dependable and efficient forming method for ordinary foundations, engineering structures, watertight walls and architectural concrete.

When you plan form work, SUPERIOR'S experienced engineers are available to prepare suggested layouts of form work as well as complete estimates and quotations.

For details request copy of our COMPLETE CATALOG

### ERIOR CONCRETE ACCESSORIES, INC.



### MOBILE BATCH PLANT . Continued from page 106



COVERED BELT CONVEYOR carries batches to ready-mix concrete trucks. Canvas hood prevents any of the mix from blowing away.

are bolted in place after the batching plant arrives on the job site. The weighing scale and electrical control panel are located at an operator's platform which folds down from the front of the trailer. Power is supplied by a 50-kw portable generator. A 7½-hp compressor powers the pneumatic clam gates on the hopper.

From the weigh hopper, batches are carried to the trucks on a 24-in. belt conveyor. A canvas hood on the conveyor prevents any of the mix from blowing away.

### Russia Orders More Use Of Reinforced Concrete

RUSSIA HAS ORDERED an immediate increase in the use of reinforced concrete by its construction industry. Starting next month, metal frames will not be permitted in many types of construction. Wood, which is also on the critical list, will soon be forbidden as a floor or roof material in large apartment houses.

The USSR's Council of Ministers has charged that the use of reinforced concrete structural frames has lagged badly under the present Five Year Plan. They criticize design groups for doing poor work in standardizing concrete structural units, and in designing thin-wall and prestressed buildings. Slow production of high-strength wire for prestressing is also condemned.

Besides increasing the use of reinforced concrete structural frames, the industry is also ordered to produce concrete tunnel ribs, mine braces, piles, and telephone poles. Even industrial buildings are included in the new restrictions. Trusses with spans under 15 meters will have to be made of reinforced concrete.



VIBER VIBRATOR selected for concrete compaction in crucial area to produce maximum density at the point where concrete stress is critical.

# Vibration essential in crucial area around prestressing cones

THE RICHFIELD OIL BUILDING ANNEX in Los Angeles is the largest monolithic prestressed concrete office building in the United States today. According to Albert C. Martin and Associates, architects and engineers on this project, prestressed construction was adopted because of design problems resulting from the matching of 10 foot 3 inch floor to floor heights in the existing building. With 8 feet the minimum clearance height, prestressing not only made possible the matching of the high velocity air conditioning ducts, and at the same time installation of recessed lighting, but



THE CONGESTION of prestressing cables and cones at the point of maximum load requires top performance from vibration equipment.

allowed a 46 foot clear span for flexibility in partitioning of office space. Because of the lack of room for erection equipment the new structure was cast in place.

- Concentration of load on the cable anchorage by stressed cables makes the area around the cones the most crucial area. Because patching of concrete in this area of cast-in-place prestressed concrete could scarcely be tolerated, consolidation of the concrete in this area is particularly important.
- Guy F. Atkinson Company, contractor, used Viber 1-5/16 and 1-3/4 inch diameter vibrators. Model E electric motor driven vibrator 1-3/4 inch diameter was used at the base of cone, or where spacing would allow, the 1-5/16 inch diameter Model 26 was used between cones as well as at the base of cone.

For further information on Viber's complete line of internal and external vibrators, contact your authorized distributor or Viber Company, Dept. 68, 726 South Flower Street, Burbank, California.

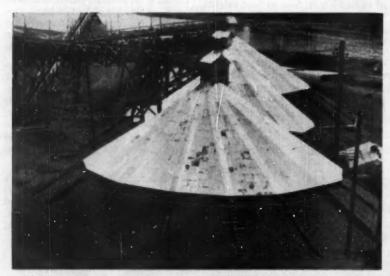
CONCRETE VIBRATORS SINCE 1931





AGGREGATE PLANT for aluminum smelter at Kitimat, B.C., is graded material is providing 2,500,000 cu yd of gravel fill and 80,000 dwarfed by mountain of sand and gravel. Natural deposit of well- cu yd of concrete aggregate for current program.

### Mountain of Gravel Serves Alcan Project



ALUMINUM SHEETING protects aggregate stockpiles from rain and snow. Sand and stone are fed through reclaiming tunnel to Johnson batching and mixing plant. Transit-mix trucks keep concrete agitated during the 4-mi haul to the construction site.

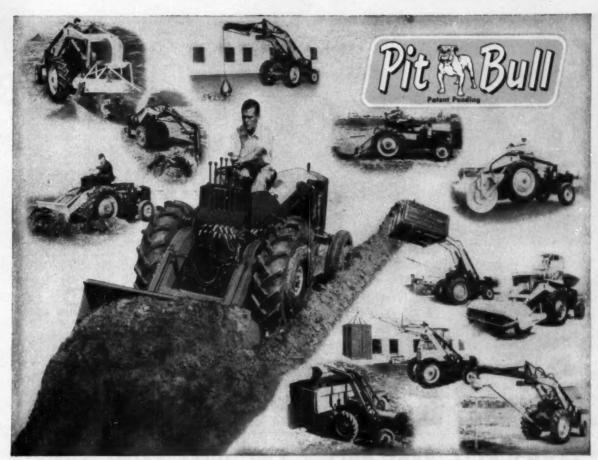
A MOUNTAIN OF SAND and gravel only 4 mi from the construction site of the big aluminum smelter at Kitimat, B.C., has been a boon in producing 80,000 cu yd of concrete and 2,500,000 cu yd of gravel fill.

Some 2,000,000 cu yd went into a fill for the site of the smelter, and 500,000 yd more were used for roads. The town of Kitimat, which is just starting to develop near by, will soon be another big user.

Development of the deposit was easy. After a relatively thin layer of topsoil was removed, dozers pushed the gravel over a bulkhead where a short belt conveyor carried the material to a truck-loading hopper.

Particles in the huge deposit are well rounded, and so clean that washing facilities are not provided in the aggregate plant. Gradation is also good. There is a slight de-

Page 110 - Construction METHODS and Equipment - December 1954



# HAVE YOU SEEN A DEMONSTRATION OF THE DAVIS Pit-Bull?

Why not prove it to yourself that the Davis Pit-Bull is America's most versatile equipment. See how a low-cost tractor is converted into a powerful industrial unit. The Pit-Bull equipped with its bucket and scarifier will perform as good or better than conventional machines costing thousands of dollars more. Because of its compactness, the quick reversing features and the rear-end steering, the Pit-Bull has maneuverability second to none. Also consider the extra savings you make because of the other attachments that fit so easily onto the basic unit. It will be easy for you to understand why it can be your most economical investment in machinery without sacrificing your work capacity. The one-man operation will save you hundreds of dollars by eliminating idle equipment and man-power time. Let a demonstration prove it!

Ask Your Dealer for a Demonstration Today, or Write Direct and We'll Arrange It for You.



### Here's the NEW Davis Loader for 1955

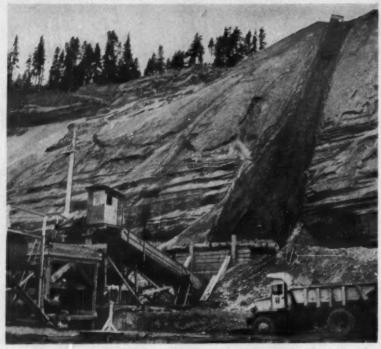
The greatest front end tractor loader value on earth. Now with more features than ever before, including lift rams with down pressure, rubber mounting with shock slots, double-strength lift arms, plus the other famous features that has made the Davis Loader America's Quality Loader. It fits all popular tractors.

### SEND this coupon for FREE literature

the Davis Front End Loader	the Davis Pit-Bull and literature on to fit a
model tractor. I would like a	demonstration on the Davis Pit-Bull
Name	
Address	
City	State

MID-WESTERN INDUSTRIES, INC.

1009 S. WEST ST., DEPT. M. WICHITA, KANSAS



DOZER PUSHES GRAVEL down on timber bulkhead where belt conveyor picks up material and feeds it to truck-loading hopper. Euclid end-dumps haul the raw gravel the short distance to the aggregate processing plant. No washing of gravel is required.

ficiency of pea gravel, but sand is plentiful. Deficiencies are made up by processing more material.

The screening plant consists of a Lippman double screen, two Symons double screens and a Symons centrifugal sand screen. About 1,600 ft of belt conveyors move the material through the plant. Aggregate is stored in stock piles covered with aluminum sheeting as protection against rain and snow.

The concrete plant includes a Johnson 3-cu yd batcher and a 3-cu yd Worthington-Ransome mixer. Plastiment admixture is added to the mixing water with a proportioning device. Concrete is hauled to point of use in truckmixers that keep the mix agitated until used.

Contractor at Kitimat is Kitimat Constructors, a joint venture of eight British Columbia contractors including: Dawson Wade & Co., Ltd.; Marwell Construction Co., Ltd.; Campbell-Bennett, Ltd.; Bennett and White Construction Co., General Construction Co., Ltd.; Emil Anderson Construction Co., Ltd.; B. C. Bridge and Dredging Co., Ltd.; and Dawson & Hall, Ltd. J. B. Whitton is project manager and A. H. Swanson is assistant project manager.

### TRANSCRETE AVAILABLE IN 3 TO 6 YARD CAPACITIES



CMC's Transcrete — the simplest truck mixer of all — features the famous "Thoro-Mix" action that charges, mixes, and discharges all slumps faster.

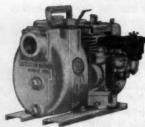
Large drum diameter, deep "L" section blades and a progressively increasing blade slope are drum design features that make for more thorough mixing, more positive discharge, and a greater ability to handle stiff, low slump mixes.

Transcrete's time saving efficiency means more trips per day as mixer or agitator.

Quality construction and simplified rugged design assure trouble-free life.

Transcrete offers you the choice of a profit making size at the price you want to pay.

# CMC DUAL PRIME PUMPS ARE LIGHTER WEIGHT YET LONGER LIVED



4M - 4000 G.P.H.

New dual volute design makes priming rapid, automatic and dependable. Unipacked shaft seal is protected by rapidly spinning liquid screen. Fewer parts — easier to service.

### ALL SIZES

Built in all pipe sizes 1½" through 4". Other CMC Dual Primers in 6", 8" and 10" sizes with capacities to 240,000 G.P.H. Larger pumps have water cooled engines—gasoline or diesel. Also full line of electric pumps and pumps for belt drive.



40M -- 40,000 G.P.H

SOLD & SERVICED BY AMERICA'S BEST DISTRIBUTORS

CONSTRUCTION MACHINERY COMPANIES . . . . . . WATERLOO, IOWA



# **NEW CHEVROLET TRUCKS**

### keep going longer, keep going for less!

From the day you first put it on the job until the time comes to trade, your Chevrolet truck's going to do more work for you while you spend less to keep it going. Here's why you can count on it—

### INCREASED POWER SAVES YOU PLENTY

Chevrolet's high compression ratio (in each of its three great engines) develops more power. That means you go longer before filling the tank! It means, too, you've got extra power handy whenever you need it—for greater acceleration, for an easier pull up steep grades, for steadier going through mud and sand on off-the-road jobs. So, you save not only on operating costs—you save time as well.

### GREATER RUGGEDNESS PAYS OFF IN LONGER LIFE

Two-ton models, for example, are equipped with heavier axle shafts. All models have newly designed clutches and stronger frames. The best part of it is that, throughout their longer life, you spend less for their upkeep. For complete details about the model you need, see your Chevrolet dealer. He'll tell you whatever you want to know, then give you the best news of all: Chevrolet trucks are priced lower than all other lines! . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

MOST TRUSTWORTHY TRUCKS ON ANY JOB!



### CHEVROLET ADVANCE-DESIGN TRUCK FEATURES

THREE GREAT ENGINES-The new "Johnaster 261" engine\* for extra heavy hauling. The "Thriftmaster 235" or "Loadmaster 235" for light-, medium- and heavy-duty hauling. NEW TRUCK HYDRA-MATIC TRANSMISSION\*-offered on 1/2-, 1/4- and 1-ton models. Heavy-Duty SYNCHRO-MESH TRANSMISSION -for fast, smooth shifting. DIAPHRAGM SPRING CLUTCH - improved-action engagement. HYPOID REAR AXLE - for longer life on all models. TORQUE-ACTION BRAKES -on all wheels on light- and medium-duty models. TWIN-ACTION REAR WHEEL BRAKES-on heavy-duty models. DUAL-SHOE PARK-ING BRAKE-greater holding ability on heavy-duty models. NEW RIDE CONTROL SEAT\* -eliminates backrubbing, NEW, LARGER UNIT-DESIGNED PICKUP AND PLATFORM STAKE BODIES - give increased load space. COMFORTMASTER CAS -offers greater comfort, convenience and safety, PANORAMI: WINDSHIELD-for increased driver vision. WIDE-BASE WHUELS-for increased tire mileage. BALL-GIAR STEIRING-easier, safer handling. ADVANCE-DISIGN STYLING-rugged. handsome appearance.

\*Optional at extra cost. Ride Control Seat is available on all cabs of 1½- and 2-ton models, standard cabs only in other models. 'Ilobmaster 261' engine available on 2-ton models, truck Hydra-Matic transmission on ½-, ¾- and 1-ton models.

# On-the-Job CONTRACTOR-LABOR RELATIONS

By LEON B. KROMER, JR.

### **Christmas Bonuses**

MAKE SURE THAT you stay on the right side of the Fair Labor Standards Act (Wage-Hour Law) when handing out Christmas bonuses. If payment of these bonuses doesn't meet certain conditions, they must

be considered part of regular wages in computing overtime pay.

The conditions to be met are:

(1) The bonus must be in the nature of a gift, i.e., it must not be measured by hours worked or efficiency. It can be a reward for

length of service with the amount measured by salary or wages.

(2) The bonus is discretionary with the employer. The fact that a bonus is to be paid at all, as well as the amount paid, must be at the sole discretion of the employer.

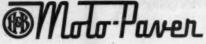
Point to remember: If a bonus is paid in accordance with a contract of employment or collective agreement it falls outside of (1) and (2) above and must be considered as part of wages.

Employees covered: The Wage-Hour Law covers employees (other than bona fide executive, adminisstrative or professional employees) engaged in commerce, in the production of goods for commerce or in closely related occupations directly essential to production of goods for commerce.

Note: All bonuses are subject to Federal withholding. Internal Revenue, apart from the Wage-Hour Law says they are "supplemental wage payments."



### Resurface with the



Moto-Paver speeds the resurfacing job—and cuts the cost. Savings up to 50% over other methods have been reported. Moto-Paver performance records—under all kinds of conditions—prove conclusively that no other method or machine produces comparable results at comparable cost.

Moto-Paveruses beach sand, gravel, crushed stone or slag aggregates and various bituminous materials including tars, cutback asphalts, road oils and emulsions. Road speeds up to 25 mph make possible quick moves from one job to another.

Standard and heavy duty models for all types of resurfacing jobs and all kinds of operating conditions.

See your local H&B dealer, or write for Bulletin MP-49.

### Taft-Hartley and NLRB

For the last several months members of the National Labor Relations Board have been speaking at meetings and conventions in various parts of the country to explain in simple terms the Taft-Hartley Act and the functions of the National Labor Relations Board—what it does not do.

While lawyers—and all members of the Board must be lawyers—are not noted for reducing law or its administration to simple terms that the layman can understand, this has been pretty well accomplished by Guy Farmer, chairman, and Philip Ray Rodgers, member. Because of the importance of this statute to the contractor, it is well to review what they have to say.

Farmer, before the Estes Park (Colo.) Conserence on Human Relations in Industry, summarized the principle provisions of the Act this way:

(1) The Act guarantees to employees the right to join or not to join labor unions, and it protects them in the exercise of this right against

### PORTABLE DRYER

For Use with Moto-Paver

This portable dryer is especially adapted for use with the Moto-Taver, to give protection against weather hazards, also to permit use of heavier asphalts and alls. It is equipped with a gas engine and low-pressure all burners—and requires notice. Hings jack legs eliminate the necessity for foundations or cribbing. Semi-trailer arrangement provides maximum portability.



### HETHERINGTON & BERNER INC.

735 KENTUCKY AVE., INDIANAPOLIS 7, IND.

with wheelbarrow base. For heavy duty work. Reliable 6 HP Wisconsin engine. 9,000 VPM.

Whiteman



features new, highly efficient Whiteman electric motor with centri-fugal blower cooling system 9,000 VPM.

with swivel base. For use on average jobs. 21/2 HP Briggs & Stratton engine, 4,000 VPM



Whiteman

THE LEADER IN CONCRETE EQUIPMENT

Whiteman Manufacturing Co. 3249 Casitas Ave., Dept. C Los Angeles 39, Calif.

Please send prices, literature and name of

rieses sand prices, literature and name of distributor for Utibrators, Screeding Machines, Power Buggles, Sindahing Machines.

Address.

City\_

Zone\_State.



- Eliminate mechanical connection
- Utilize smaller, lower-cost motors
- · Cushion out shock-loads
- · Provide quick acceleration
- Balance compounded drives
- Transmit full input torque continuously

with

### FLUID DRIVES

If your powered equipment starts under load or has frequent running load variations, you can eliminate most maintenance prob-



lems with Twin Disc Fluid Couplings. For complete details on selecting and applying Fluid Couplings on motors or engines, 34 to 850 hp, write Twin Disc Clutch Company, Dept. DS, Racine, Wisc., today for new Bulletin 144-D.



TWIN DISC CLUTCH COMPANY, Racine, Wisconsin Hydraulic Division, Rockford, Illinois LABOR . . . Continued

employers and unions. (Remember this when you try to get a man to join a particular union in order to work on your job.)

- (2) The Act prohibits companydominated unions. (There are probably no such unions in the construction industry.)
- (3) The Act prohibits the discharge or other discrimination against an employee because he joins a union —or refuses to join a union which his employer favors. (Violation of this has cost contractors plenty by back wage payments.)
- (4) The Act prohibits the closed shop. (It has been estimated that approximately 90% of the union agreements in the construction industry still contain closed shop provisions.)
- (5) The Act prohibits secondary boycotts and strikes.
- (6) The Act provides machinery for holding employee elections. (This is true of all industries except construction where the machinery broke down when the Board tried to conduct elections.)

Chairman Farmer, in a speech before the National Association of Motor Bus Operators in Chicago, had this to say about the Board:

### What It Does Not Do . . .

- (1) It does not make law.
- (2) It does not have authority to settle strikes, arbitrate labor disputes or suggest the terms of a settlement of a labor dispute.
- (3) It has no power to attempt to bring about settlements of a labor dispute through mediation. This is a function of the Federal Mediation and Conciliation Service.
- (4) It does not formulate Administration labor policies except as these may, by legislation, become a part of the Taft-Hartley Act.

### What It Does Do . . .

- (1) It administers, as an independent agency of government, one statute—the Taft-Hartley Act. The Board must interpret and enforce the law within the limits set by its language and Congressional intent.
- (2) It provides the machinery for holding employee elections, i.e., elections to select a union to represent employees in collective bar-

For your concrete forming needs...

EFCO ZIFET/ME" STEEL FORMS

PURCHASE BASIS



Increase profits, reduce costs—with EFCO "Lifetime" Steel Forms. They save time, material, money. Adaptable to wide use. Available in many types of regular and special sizes.

write for New CATALOG on EFCO "Lifetime" Steel Forms. And ask for details on Special Economy Steel Forms and the Economy Steel Form System on a rental basis.

HOME OFFICE \* DES MOINES. IOWA
DISTRICT SALES OFFICES: St. Louis, Mo. \* Kanasa City, Mo. \* Lincolin, Nebr. \* Minneapolis,
Minn. \* Ft. Wayn, Ind. \* Cincianatt. Ohio \*
Cleveland, Ohio \* Metucless, M. J. \* Springfield.
Mass. \* Rochester, T. \* Washinaton, B. C.
Decatur, Ga. \* Dalian Toxts \* Los Angeles, Calif.
Oakland, Calif. \* Derevr. Colo.



Superior-Lidgerwood-Mundy has the facilities and experience to meet them . . . either from an all-inclusive line of standard hoisting equipment or with equipment engineered to your specific requirements.

WRITE FOR BULLETINS AND CATALOGS

SUPERIOR LIDGERWOOD MUNDY CORPORATION

Main Office and Works: SUPERIOR, WISCONSIN, U. S. A. New York Office, 7 Dey Street, New York 7, N. Y.





### \*39,000 missing

... and so was one of our trusted employees!

(Based on Company File #130975)

disappeared.

A routine audit eight months

after she came with us disclosed

many irregularities in her accounts.

We started an investigation. But the

woman and her family suddenly

It didn't take long to find out

why. She had been systematically

stealing funds almost from the first

day she started work. All told, in

just seven months on the job, she

had taken over \$39,000!

We thought ourselves pretty good judges of character. But how wrong we were!

You see, we hired a woman for a job that included handling cash and doing bookkeeping. She was married. Had three children—all in school. Last job in the East.

She seemed capable and we had no reason to question her honesty, so we took her on. That turned out to be a mistake.

Stories like this are not unusual. Pick up your newspaper, and there's a good chance you'll find one like it.

The employer never suspects—until too late. He knows most employees are honest. He relies on his judgment in picking people for positions of trust. But sometimes he picks a "bad apple."

Even so, he need not lose money because of employee dishonesty. A Hartford Blanket Fidelity Bond offers solid protection against that risk. It covers all employees. It pays for losses of money, equipment or other company property stolen by any of them.

Your Hartford Accident and Indemnity Company Agent or your insurance broker will be glad to give you full details on request.

Year in and year out you'll do well with the

### Hartford

Hartford Fire Insurance Company • Hartford Accident and Indemnity Company
Hartford Live Stock Insurance Company • Hartford 15, Connecticut

### LABOR ... Continued

gaining, elections to unseat a union previously designated to represent the employees, and elections to deauthorize a union from maintaining a compulsory membership agreement.

In all discussions relating to the Taft-Hartley Act, the basic tenet of the statute is often lost sight of. It has been well expressed by Rodgers in a talk before the Southeastern Personnel Conference at Duke University. He said, "In these days of big unions and big business it is all too easy to overlook the fact that basic to this law is the individual employee. . . . It is to safeguard that individual employee in his rights of free associtation that this statute is primarily aimed."

### The AFL Convention

You may be affected by some of of the proposals that came out of the recent AFL convention at Los Angeles. The delegates gave strong support to AFL President George Meany's plan to end jurisdictional disputes within the AFL itself (CM&E, Sept. p. 144). The plan contemplates elaborate machinery of mediation and negotiation from the local level to national which could mean the end of jurisdictional fights between building trades and other AFL affiliates (teamsters and machinists, for example).

The delegates gave unanimous approval to a building trades plan to amend the federal Eight Hour Laws so that contractors on federal construction cannot work employees up to 56 hr a week without any overtime pay. Under the present laws you are required to pay at least time and one-half the employee's basic hourly rate for all hours worked in excess of eight in any one day. The laws place no limit on weekly hours.

There is to be all-out war with the United Construction Workers, a part of John L. Lewis' catch-all Local 50, UMW. This union has for years been active in the construction industry in the coal mining regions but has, during the last year, extended to organizing heavy and highway contractors with some success. A number of contractors have already been confronted with the fight between UCW and the building trades and have been able to proceed with their work only after intervention by the National Labor Relations Board.



US ON SCHEDULE"

Gerhold Company overcame ring troubles by changing to this tough, dependable oil

This Ford F-800 is loaded with 15 tons of gravel. The gravel is sucked from the pit, cleaned and hauled away to be used in making cement. Such tough work calls for tough oil—Phillips 66 HDS Motor Oil.

THE BROTHERS W. M. and A. N. Gerhold have been in business for over 31 years, specializing in road building throughout Nebraska. The Gerhold Company also operates eight gravel pits and a plant making concrete blocks. The equipment in use consists of 18 kinds of Caterpillar Diesel units and 40 Ford Trucks. And this equipment operates under all the usual rough conditions—with a few extras added.

Since 1941, the Gerhold equipment has been lubricated with Phillips 66 HDS Motor Oil. Before then, says W. M. Gerhold: "We had a spell of trouble with excessive carbon deposits. And when you are building a road, you can't have

your equipment in the shop. We have a schedule to meet. If we go past our estimated time on a job, the costs skyrocket. Excessive carbon was causing ring failure—putting our equipment in the shop instead of on the job. That's why we now use Phillips 66 HDS. We don't get excessive oil consumption, carbon or sludge—have no ring or valve trouble and our engines at overhaul are extremely clean. You can say in all truth, it's a tough oil, a dependable oil—and I would recommend it to anyone."

Phillips 66 heavy duty motor oils can bring many advantages to you, too. To find out how your fleet can benefit, just write for information.

Set up your own test. A Phillips 66 Lubrication Engineer will be glad to help you plan it without obligation. Write to: Sales Department, Phillips Petroleum Company, Bartlesville, Oklahoma.

\_Oil for the Engines of Commerce-



PHILLIPS 66 HEAVY DUTY MOTOR OILS

### CONSTRUCTION EQUIPMENT NEWS



### 25-hp Clipper Concrete Saw

Designed for continuous heavy duty, such as cutting contraction joints in new and old concrete, is this model C-250 Clipper gasoline-powered concrete saw. It has a variable speed transmission with speeds from zero up to 12 fpm. Two abrasive coated drive wheels

operate in direct contact with both rear wheels of the saw for better traction. Blades are raised and lowered by a patented positive screw feed with cutting depth lock. The machine is operated by one man.—Clipper Manufacturing Co., 2800 Warwick, Kansas City 8, Mo.



### Low-Priced Pick-Up Pump

Called "Pup," this pump weighs only 27 lb but has plenty of pressure for garden-type hose. Is self-priming, quiet, powered by Clinton engine. Sells for \$98.—Construction Machinery Co., Pump Dept., Waterloo, Iowa.



### Self-Propelled Welder

This 300-amp gasoline engine driven welder has its own crawler tracks. Power to drive the tracks is transmitted through a chain, a differential and final bull gear drive. Steering is accomplished by brakes on the drive wheels.—Schramm, Inc. West Chester, Pa.



### Trencher Has New Control Panel

This mobile trenching machine, the Earthripper, has a new control panel that provides easier reach for operator. All operations are hydraulically performed, except for driving the bucket line and loading. It requires only one man to operate and transport. The

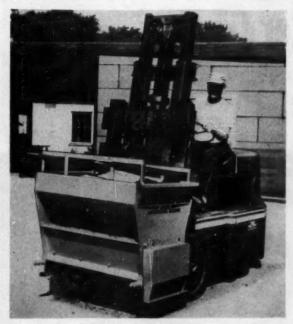
Earthripper will dig to depths of 8 ft and in 10- to 30-in. widths. Conveyor belt speeds are up to 750 fpm. Hydraulic cylinders maintain the boom in a vertical position, even when on sloping ground.—Owen-Pewthers Manufacturing Co., College Station, Tex.



### **Plastic Cutter**

This new portable electric plastic cutter for electrical contractors operates on either ac or dc current. It has two  $4x5/32x\frac{1}{2}$ -in. abrasive wheels. It's  $16\frac{1}{2}$  in. long and weighs 13 lb.—The Wodack Electric Tool Corp., 4627 W. Huron St. Chicago, III.

### On-the-Job Previews of Machinery, Tools and Equipment



### Fork-Lift Truck Spreader

This industrial spreader operates from any lift truck. It will handle crushed stone, cinders, sawdust and similar materials. The lift-truck fork engages supports on the spreader, lifts it up and then lowers it to operating position. Spreading action is stopped by lifting the fork slightly, started by lowering the fork to engage a drive wheel.—Swenson Spreader & Mfg. Co., Lindenwood, Ill.



### Hopto Digger Adds More Power

The new model Hopto Digger 200 DTM-55 now has 20% more power with boom and dipper stick made of formed plate. The inside diameter of the hydraulic cylinders operating the boom, stick and bucket control have been increased to 5 in. The unit can be operated by air- or water-cooled unit or from power take-off of the truck.—Badger Machine Co., Winona, Minn.



### Wide Choice in '55 Fords

Ford trucks for 1955 provide a total of 190 models ranging from the husky 30-ton tandem-axle "Big Jobs" down to the popular F-100 pickups. Five engines include sixes and eights. There are 15 wheelbase lengths with vacuum-boosted power brakes.

For increased reliability, new 9,000-lb capacity front axles are standard on the F- and C-900 series. For heavier forward loading, a new 11,000-lb front axle can be supplied for Series T-800 tandemaxle trucks.—Ford Motor Co., P.O. Box 638, Dearborn, Mich.



3/4-Yd Loader

The new Lessmann GFT Model of 3/4-yd capacity has front-wheel drive and rear-wheel steering. Bucket is 22 yd, struck capacity, 28 cu ft, heaped. The loader has full reversing in any speed range from 2 to 20 mph and features the (Continued on page 124)

# "They're working rings around the bigger trucks"

- says Ed Kimball, owner of Boylston Construction Co., Boylston, Mass., in telling how Hydra-Matic\* GMC's are getting his jobs done quicker — and cutting costs to boot.



EXCAVATING AND MOVING 80,000 YARDS OF BANK GRAVEL IN SEVEN WEEKS calls for a team of eleven trucks and two shovels. Boylston Construction's two new 145 h.p. GMC M470's—equipped with 4-yard dump bodies and sideboards that hike their capacity

to 8 yards—are working with nine trucks of other makes. All nine have greater horsepower—three of them are ten-wheelers. "Those GMC's are hustling more gravel each day than any other rigs on the job," Kimball says.



CLIMBING A STEEP UNPAYED GRADE—without room for a running start—is the only way out of the nearly completed excavation. Recently—when heavy rains made the grade slick and muddy, it proved too tough a pull for the big ten-wheelers when fully loaded. But the GMC's—their Hydra-Matic-controlled flow of power applied through single rear axles—made it every trip with loads heaped to B yards—just one less than the other trucks. "We never even had them going all out," driver Jack Whalen boasts.



GMC HYDRA-MATIC FUEL ÉCONOMIES really add up on the steady diet of one-mile hauls from pit to dumping point. The M470's (22,000 GVW) are each using 17 gallons of gas a day as compared with 27 gallons burned by a comparatively powered truck on the same job. "And I'm looking forward to wiping all clutch-repair costs off my books," Kimball says. "My previous trucks wore out three clutches apiece every two years. To date, the GMC's haven't cost me a dime for any kind of repairs."

\*Hydra-Matic standard on many models; optional at extra cost on others.

GMC Truck & Coach-A General Motors Division



RADIANT
Portable Heat

ON THE JOB THE

866 Windsor Street, Hartford 1, Conn.

Send us the complete story about Silent Glow Heaters

Name

Company

Street

### Standard of the Industry Since 1936



# AND NOW! EVEN BETTER THAN EVER!

wher finer

# NEW REVOLUTIONARY MODELS 500-C and 750-C

Fully Covered by issued and pending U.S.A. and Foreign Patents

Save TIME and MONEY with Luber-finer's FASTER SIMPLIFIED Pack Replacement

### Luber-finer Exclusive Features

- SINGLE BOLT CLOSURE—Ingeniously designed Clamping Ring utilizes Single Bolt Closure for quick, easy Pack Replacement.
- POSITIVE SEALING GASKET—Long lasting "O" ring type gasket assures leak-proof lid closure at all operating pressures.
- NEW TYPE INTERNAL DESIGN AND CONSTRUCTION—Provides multiple seal to eliminate the possibility of oil by-passing the Luber-finer pack.
- DUAL SAFETY VALVES—Prevents oil drainback, assuring exact crank case oil level reading at all times, stops oil from circulating through unit if lines are reversed or if Luber-finer is otherwise improperly installed.
- ONE-PIECE EXTRUDED STEEL HOUSING—Plus rugged mounting brackets insures durability and long, trouble-free operation.
- TIME-TESTED PATENTED FILTERING PROCESS
  Only in genuine LUBER-FINER PACKS
  —the exclusive patented filtering process
  proved by millions of satisfied users the
  world over.

FOR COMPLETE INFORMATION WRITE DEPT. 7



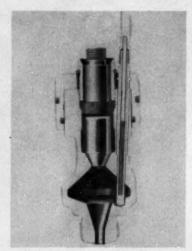


LUBER-FINER, INC., 2514 So. Grand Avenue, Los Angeles 7

### EQUIPMENT NEWS .

Continued from page 121

Lessmann Power Crowd which allows operator to fill bucket without forward movement of tractor. Full line of attachments is available as extra equipment. Lessmann Mfg. Co., E. 20th and Easton Blvd., Des Moines, Iowa.



FOR EASIER STARTING — All-weather direct electric starting with newly developed glow plugs is now available for the Caterpillar D4 tractor. The glow plug acts as a heating element and extends into the precombustion chamber of the diesel engine where it is activated by battery current to reach a temperature of 1,800 deg within 30 sec.—Caterpillar Tractor Co., Peorla, III.



MAGNETIC RETRIEVER — This handy magnetic retrieving tool locates and retrieves small objects that are hard to reach and grip. The job is done by a powerful Alnico V magnet attached to an adjustable telescopic handle. The magnet is not affected by oils or greases. It is available in three sizes: 13 to 26 in., 7 to 14 in., and 8½ in.—Ullman Products Corp., 15 River St., Norwalk, Conn.



Wire Rope at Work—A sign of progress, a sign of the times, was this construction scene on the Delaware River Extension of the Pennsylvania Turnpike. As a means of bypassing Philadelphia traffic and providing a link with the neighboring New Jersey Turnpike, the new extension should be a boon to motorists, both east-bound and westbound.

The girder shown in the photograph, the one being lifted into place, is part of a new bridge that crosses the Schuylkill River at Bridgeport, Pa. Weighing approximately 37 tons, this structural member was handled by a big stiffleg derrick rigged with Bethlehem wire rope. Here the job called for strong Purple Strand, the rope that tames the meanest lifts—and the hefty girder proved no problem at all.

BETHLEHEM

Bethlehem Steel Company, Bethlehem, Pa. On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation

Mill depots and distributors from coast to coast stock Betblehem rope for the following industries and numerous others:

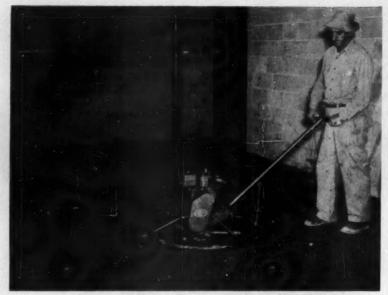
CONSTRUCTION • MINING • PETROLEUM • EXCAVATING • QUARRYING • LOGGING • MANUFACTURING

# This Concrete Trowel Has Plenty of 'Heft'

ACTUALLY THE NEW STOW ROTO-TROWEL doesn't look much different from other well-known powered trowels, but this Binghamton, N. Y., manufacturer has incorporated a lot of "little things"—most of them received in suggestion form—that make it a husky, versatile, easy-to-operate and service, safe concrete finisher.

Probably the best description of the Stow trowel comes from a veteran of 29 years of concrete finishing, Jack Bohlander, employed by Contractor Frank O'Connell of Binghamton who, when we talked to him, said: "One of the things I like best about this Stow machine is it has plenty of "heft", yet it doesn't make my arms tired." Power trowel operators can well appreciate Mr. Bohlander's statement regarding "heft".

Stow conducted a survey among concrete finishers to see what they wanted. After the answers came in, a few models were built, put out in the field for testing and followed up by sending a questionnaire to dealers who obtained answers from the users. When the completed questionnaires were returned. Stow



NEWEST ENTRY into the powered trowel field is this Stow Roto-Trowel featuring a stationary guard ring instead of the rotating type. It's available with gas or electric power.

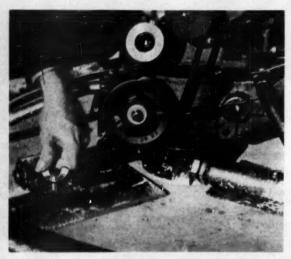
engineers found that users wanted some minor changes made, such as using wing bolts to attach blades instead of the usual elastic type nut which required a wrench. Another interesting suggestion, and certainly a minor one, was attaching a hook on top of the engine so the entire unit could be lifted easily. Altogether Stow made eight minor changes, all received from the field, before production was begun on a stock model.

Probably the most outstanding feature of the new trowel is a stationary guard ring instead of the more conventional rotating type. This is claimed to make the machine safer and permit it to operate right up to walls and other obstructions. The ring is 35 in. in dia with trowel dia of 34 in.

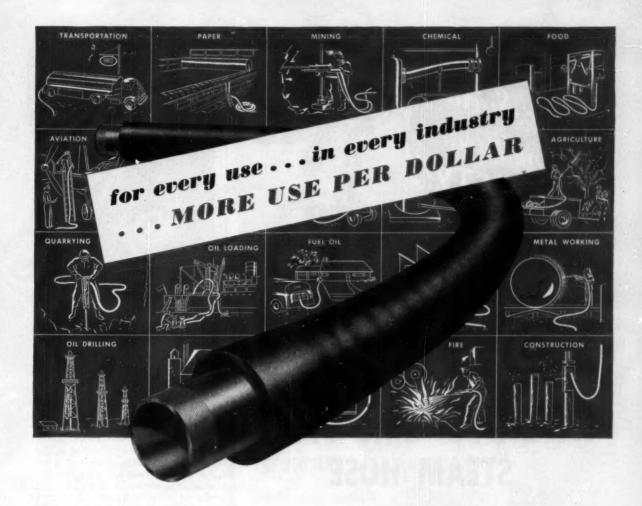
The present trowel is powered with a Briggs & Stratton 2½-hp gas engine which supplies adequate power for higher slump concrete. The machine can also be obtained with a GE electric fan-cooled 1½-hp motor, in either single-phase 115/220-v, 60- or 50-cycle



THIS TROWEL incorporates many suggestions received from users who accepted the invitation of the manufacturer to help improve it. One such improvement received was this hoisting ring.



TO CHANGE TROWELS on the Stow model no tools are needed. This hand-operated wing bolt pulls the blade up into a recessed slot that insures correct seating and holds it securely.



R/M HOSE Raybestos-Manhattan makes the

world's largest and strongest suction hose for conveying sand, water, oil, and sludge materials faster and more efficiently . . . at lower cost. R/M hose constructions range from 4" paint spray hose to huge dredging hose big enough for a man to crawl through. Whatever your hose requirements - for handling air, water, steam, chemicals, gases and fluids of any kind - R/M hose will do your job better

... because it's designed and engineered to last longer for each specific use. If you have a hose problem, Manhattan has the solution . . . over sixty years research and engineering experience assure you "More Use per Dollar" from every length you buy. You'll find the same is true of R/M conveyor belts, V-belts, flat transmission belts and other rubber products for your industry. Consult an R/M representative.



1

-

RUBBER DIVISION-PASSAIC. MANHATTAN

### BESTOS-MANHATTAN,















Other R/M products include: Industrial Rubber \* Fan Belts \* Radiator Hose \* Brake Linings \* Brake Blocks \* Clutch Facings Asbestos Textiles \* Packings \* Engineered Plastic, and Sintered Metal Products \* Bowling Balls



# "INFERNO® Pile Driver STEAM HOSE

Now... when selecting hose for pile driving... there can be no mistaking an unsafe hose for "Inferno"... the steam hose with an unequalled reputation for strength, durability and safety in pile driver service. That new black spiral stripe, on the familiar red synplastic cover, will quickly identify the hose that's built to stay on the job longer, without risk of bursting and consequent danger to men and damage to equipment.

"INFERNO" specifications include high-temperature tube; multiplelayer, braided steel wire carcass; red wear—and weather-resistant synplastic cover. Sizes ½" to 3", inclusive, in maximum lengths of 50 feet.

Contact Our Negrest Branch for Details and Prices



**GOODALL RUBBER COMPANY** 

GENERAL OFFICES, MILLS and EXPORT DIVISION, TRENTON, N. J. Branches Philadelphia · New York · Boston · Pithburgh · Indianapalis · Chicago · Detroit · St. Pard Los Angeles · San Francisco · Seattle · Spekane · Portland · Salt Lake City · Detroit · Detroit · San Lake City · Detroit · Det

ROTO-TROWEL . . . Continued from page 126



THIS DEAD-MAN CONTROL on the wide cross-bar of the handle immediately stops the machine, but not the engine, when it is released.

or in 3-phase 220/440-v. 60/50-cycle.

Blade rotation in the gas model is 25 to 100 rpm, while in the electric model it is a constant 90 rpm. Both gas engine and electric motor use the same base for mounting, so power plants can be interchanged.

The blades are 10x14 in. in float trowel and 6x14 in. in finish trowel. Since they are not attached to the ring, there is little chance of damage from ring contact with obstructions. The blades fit into a recessed slot to insure correct seating and are secured with a hand-turned wing bolt.

A dead-man control of the handgrip, squeeze-type on the handle, immediately stops the machine when the operator releases pressure. However, the engine continues to operate, eliminating the necessity of re-starting the engine.

The unit has an adjustable handle so the operator can set the height to his most comfortable operating position.

Pitch of the reversible blades can be controlled while the machine is in motion merely by turning a knob on the cross-bar of the handle. Weight of the complete unit is 143 lb.

The Stow Roto-Trowel doesn't require an expert to operate it, (we know) but it gives good results. If you're in need of a power trowel to eliminate hand finishing, one with which you can surface float within one hour after removal of screed from job and one that has been designed with users' suggestions from the field, then we recommend that you investigate the new Stow Roto-Trowel.

1

### UNIVERSAL CONCRETE FORMING EQUIPMENT

a complete line from 1 Source



### SPIROLOC® Form Ties

5000 to 30,000 lb. Form Ties with  $\%^{\prime\prime},$   $\%^{\prime\prime},$   $\%^{\prime\prime},$   $34^{\prime\prime},$   $34^{\prime\prime},$  and  $1^{\prime\prime}$  threaded Tie Rods



### **SPIROLOC Form Ties with CONE NUTS**





### The FORM CLAMP

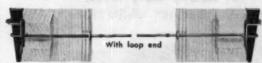
Two Form Clamps and a length of mild steel rod comprise the most flexible Form Tie



### **Snap Ties**



For 3000 lb. and 5000 lb. working loads



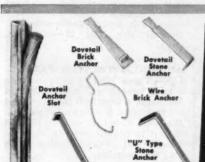
For 3000 lb. working loads



### The FORM CLAMP SURE GRIP Principle

Tremendous holding power is provided — assures tight







"Z" Type Stone Ancho



¥

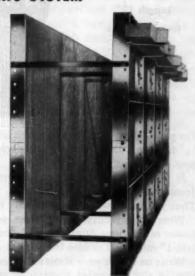
1

Write for Catalogs describing Universal Concrete Accessories and UNI-FORM Panels —There's no obligation

### **UNI-FORM®** Panels...

### THE MODERN FORMING SYSTEM

- A Complete System always Automatically accurate
- Form Any Concrete . . .
   Using Less Lumber, Labor and Material Than Any Other Method!
- Ready To Use Fast Job Starts — NO WAITING
- Rented Sold Rented with a Purchase Option
- Complete Engineering and Field Service provided without charge to UNI-FORM Panel users.



ONIVERSAL FORM

FORM CLAMP CO

GENERAL OFFICES AND FACTORY: 1238 N. KOSTNER - CHICAGO 51, ILLINOIS

OFFICES AND WAREHOUSES.

CLEVELAND, OHIO, 24901 Lekelond Blvd. • BALTIMORE, MD., 661 S. Mennes St. • HOUSTON, TEXAS, 2314 Presides Ave.
SAN LEANDRO, CALIF., 2051-9 Williams St. • LOS ANGELES, CALIF., 5855 South Western Ave
DISTRIBUTORS IN PRINCIPAL CITIES

Service

Wherever

You Build ... Coast to Coast





For your light-duty anchoring work into steel or concrete, requiring \( \frac{1}{4}'' \) fasteners, the RAMSET JOBMASTER can't be matched for speed, ease, economy and wide versatility.

If  $\frac{3}{8}$ " fasteners are called for, you can have a Plus-Power Jobmaster, or attach a  $\frac{3}{8}$ " assembly to your standard Jobmaster. Thus you have two tools for slightly more than the cost of one.

Where heavy-duty \(^8\)'' fasteners are needed, the great driving power of the new SUPER-POWER JOBMASTER sets them instantly into 1" mild steel or into the hardest concrete.

Write us or ask your RAMSET dealer for on-your-job demonstration of the all-around superiority of RAMSET SYSTEM for ease, speed, utility and economy.

Ramset Fasteners, INC. Olin Industries, Inc.
12103 BEREA ROAD • CLEVELAND 11, OHIO

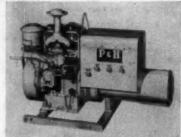
FIRST IN POWDER ACTUATED FASTENING





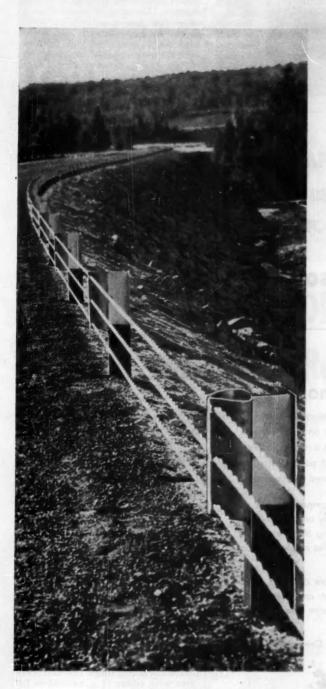
SPACE DRYER—A new line of blowers, dryers, heaters and ventilators is designed to move either hot or cold air to the point needed for drying concrete, plaster or paint. The Cimco Jet line furnishes contractors a new tool for stepping up work at confined job sites where damp, stale air or odors threaten to hold up production. Exhaust gases from the jet are easily piped away from work areas.—Construction-Industrial Mfg. Co., Marshalltown, Iowa.

ALUMINUM TREATED TARPAU-LIN—A new kind of tarpaulin, one that is treated with aluminum and Elastiseal, a treatment for water and rot resistance is now on the market. It's called AlumiZel, and it is claimed that it is flexible even in sub-zero weather.—H. Wenzel Tent & Duck Co., St. Louis, Mo.

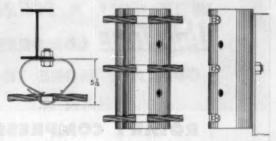


LIGHTWEIGHT WELDER—Newly designed this Harnischfeger model WN-150 combines extremely small compact size with generous output. Power comes from a two-cylinder, air-cooled gas engine close coupled to the P&H-built welding generator. Capacity is 20 to 200 amp. Weight is 425 lb and it is 45 in. over all and 20 in. in height. It's intended to give an all-purpose welding service in the shop and in the field at a minimum of welder investment.—Harnischfeger Corp., 4601 W. National Ave., Milwaukee 46, Wis.

# BETHLEHEM CABLE GUARD RAIL gives that extra margin of safety



You can be sure of dependable protection for motorists when you install Bethlehem Cable Guard Rail at danger points along highways. Used at turns, embankments, bridge approaches and other hazardous locations, Bethlehem Cable Guard Rail forms a strong barrier, with high resiliency and impact-absorbing qualities.



This wire cable guard, with its special bumpertype bracket, is of simple design, easy to install, and of low initial cost. It requires little maintenance, is adaptable for use with steel, wood or concrete posts, and is furnished to comply with any state regulations. Bethlehem Cable Guard Rail can be provided with 2, 3 or 4 cables, with 1,  $1\frac{1}{4}$  or  $1\frac{1}{2}$  in. anchor rods.

Bethlehem furnishes cable guard rail, steel posts, brackets, cable ends, anchor rods, cable splicers and fittings, all of which assemble readily and easily on the job. In addition, Bethlehem makes Safety-Beam Guard Rail, a solid beamtype guard rail.

For more information on Bethlehem Guard Rails—and all Bethlehem products for highways—call the nearest Bethlehem sales office, or write to us at Bethlehem, Pa.

### BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEER





### WHY WILL A SCHRAMM //ΠΙΔΤΠΠΕ COMPRESSOR **OPERATE MORE TOOLS** THAN A ROTARY COMPRESSOR

### ILLUSTRATION #1

A Schramm Unistage model 210 on a job operated four paving breakers @ 90 psi. A Rotary comsame breakers.

### **ILLUSTRATION #2**

A Schramm Unistage 315 held 70 psi continuously on a Gunite job. On the same job a rotary comprespressor only held 70 psi on these sor held only 55 psi and after 45 minutes overheated and shut down.

This is easily understandable because Rotary compressors are so critical as to temperature of compressed air that they are designed to shut down when the temperature of the air leaving the compressor reaches 220°. This means that when the air leaves the receiver, it can never be as high as 175°.

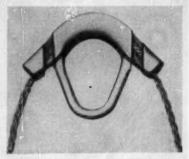
Water cooled Schramm Unistage Compressors are designed for a maximum temperature of 275° at the receiver outlet, and compressed air at 275° will not damage air hose and is 15% more powerful than the maximum Rotary 175°.

For details on other advantages of Schramm Compressors write us today.

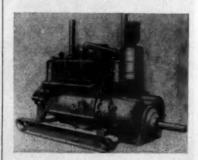
SCHRAMM, INC.

SCHRAMMAIR YOUR JOBS

HYDRO STEAM CLEANER-A new portable Vapor-Clarkson hydro steam cleaner (Model 4989-G) jets out 1,200 gal of hot water at 240-lb pressure. An automatic 40-hp Vapor-Clarkson steam generator in the unit develops 120 lb working steam pressure in 2 min from cold water and more than 1,100 lb of steam per hr which is directed through a Sellers injector. The unit is mounted on a two-wheel trailer with large doors so that the operator can easily reach controls. It has a fuel tank for 8 hr of operation and a float-control water supply tank. It's equipped to do effective cleaning in three ways: by jetting out 180 deg water under 240lb pressure, by jetting hot water under pressure mixed with a cleaning detergent and steam cleaning with or without detergent.-Vapor Heating Corp., Chicago, Ill.



SLING BRIDLE-The Newco sling bridle converts a conventional sling to a two-leg bridle sling in just a few seconds. It is claimed to eliminate the necessity of a pear link with two eye splices. The tapered groove of the sling bridle firmly grips the sling so there can be no load slippage, even when the load is unbalanced. The legs of the bridle sling are quickly and easily adjusted or equalized for the different loads .-Newman Mfg. & Sales Co., P. O. Box 5939, Kansas City 11, Mo.



MINNEAPOLIS-MOLINE - 252 to 290 hp is provided in the new, heavyduty Minneapolis-Moline 1600-12A industrial power units. The unit operates with either 12 v, natural or LP gas. The unit was designed specifically for pumping applications, genera-tor sets, oil-field equipment, and crushers. - Minncapolis-Moline Co., Box 1050, Minneapolis 1, Minn.





# REMINGTON STUD DRIVER pays 2 to 1 at Laurel Race Track

### Powder-actuated tool saves time and money anchoring seats

Contractors for the seat-installation job at Laurel Race Track near Baltimore picked a winner in the Remington Stud Driver. This powder-actuated tool set up to 5 studs per minute in the concrete grand-stand flooring and secured the seats in record time. Each stud was set so firmly only one per seat leg was needed!

You'll finish in the money with the Remington Stud Driver on any fastening job where studs are needed in concrete or steel. Anchoring wood furring strips, steel structural angles, or flexible metal framing sections is fast and easy with the tool. There are no wires or cables to get in the way—no outside source of power is required. With the lightweight (6 lbs.) Stud Driver in your hand, cartridges and

studs in your pocket—you're ready to work anywhere, any time! Clip coupon for full information.

### TYPICAL QUESTION FROM A CONTRACTOR

Q. I have a full set of your special guards but need one "tailor-made" for a special job. Will you make it for me?

A. We sure will. Just send us a sample of the fixture or section to be auchored.

### MAIL THIS COUPON TODAY

Industrial Sales Division, Dept. C.M.E.-12
Remington Arms Company. Inc.
Bridgeport 2, Connecticut
Please send me a free copy of the new booklet showing how I can cut my fastening costs.

how I can cut my fastening costs.

Name\_\_\_\_\_\_Position\_\_\_\_\_\_Firm\_\_\_\_\_

State

Address\_\_\_\_



Remington appr

Listed & Approved by Underwriters' Laboratories, Inc

# Extra-Strength makes BUCH #155 Favorite Concrete Barrow!



BUCH #155 The BUCH 155 is designed to carry more...yet go through narrow doorways, Famous BUCH quality construction means more wear, lower cost on the job. Yet BUCH barrows cost no more. Also available with non-corrosive aluminum tray. Send for leaflet showing Buch Contractors' Barrows.



### MAYO STEEL FORMS

Mayo produces all types of Tunnel Forms — telescopic, non-telescopic, separate sidewall and arch, single unit, full round forms for monolithic pours, etc. Each is designed for the exact requirements of the job—be it Tunnel, Sewer or Conduit!

Write for our FREE Bulletin No. 15 or send details.

Steel Forms • Headframes • Muck Bins • Shields • Air Locks • Locemotives • Mine Cars • Greaters



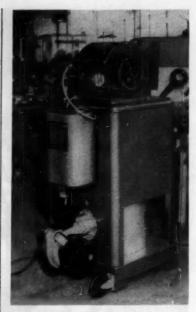
# McKIERNAN-TERRY JOB-PROVEN Pile Hammers

McKiernan-Terry Pile Hammers are job-proven and time-tested . . .

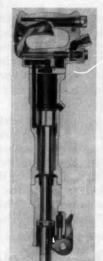
the choice of engineers and contractors on major construction projects throughout the world. Available in a standardized line of 11 double-acting hammers, 5 single-acting hammers and 2 double-acting extractors. Write for free Bulletin.

Also builders of coal and ore bridges, bulk material unloaders, bridge operating mechanisms, hoists and marine equipment, and specially designed machinery.

McKIERNAN-TERRY CORPORATION
MANUFACTURING ENGINEERS
14 PARK ROW, NEW YORK 38, N. Y.



CONVERSION UNIT - Simplified controls and an attachment which converts a portable heater into a summer cooling unit are among the outstanding features of the Fageol Model PW-189 heater. The new machine can be placed in operation simply by plugging in the electric line and snapping a switch. The machine is completely self-contained, portable and does not require a vent, flue or chimney. Conversion of the heater into a fan is accomplished by changing the top blower mounting which is said to require only 5 min. As a fan it delivers 1,500 cfm of cool air. As a heater it has a capacity of 189,000 Btu per hr.-Fageol Heat Machine Co., Div. of R. D. Fageol Co., Kent, Ohio.



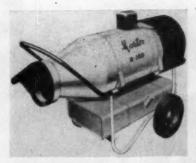
CLAY DIGGER

-A new heavy-duty clay digger claimed to be highly efficient for excavating stiff clay and hard pan, as well as concrete and shale has latchtype chuck retainer which permits quick changes of working steels, such as spades, flat picks, moil points, chisels, asphalt cutters, frost wedges, dirt tampers and others. Net weight of the

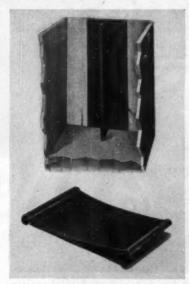
8

T

model DD-30 is 31 lb. It is 23 in. long, 7 in. wide and 4½ in. in depth. Davey Compressor Co., Kent. Ohio.



spot heater—Claimed to be a small furnace on wheels, this space heater, known as the Master, can be rolled wherever you need it, takes up less than 10 sq ft of floor space and puts out plenty of heat. It's allsteel welded and needs no vent to eliminate gases. It throws 160,000 Btu of forced air heat per hr, operates at the flip of a switch, and rises to full heat in 2 min. It will heat for a minimum of 12 hr without refueling. It burns kerosene. Available in two sizes, 160,000 or 400,000 Btu.—Master Vibrator Co., 361 Stanley Ave., Dayton, Ohio.



1

8

7

split waterstop—A new splittype dumbbell rubber waterstop, which eliminates the need for slotting or split-bulkheading when forming structures or walls where hydrostatic water pressure is involved, has just been introduced. It's supplied with one-half of the width split so that it may be fastened or nailed to the inside of the bulkhead to form a T. After the section has been poured, the bulkhead is stripped and the two divided sections are joined together with rubber cement or by stapling. They are available in 6- and 9-in. widths in standard GRS rubber, neoprene, natural rubber or geon polyvinyl.—Servicised Products Corp., 6051 W. 65th St., Chicago. III.



# An equipment lesson from the Alcan project

... 61 CARCO winches needed on the job



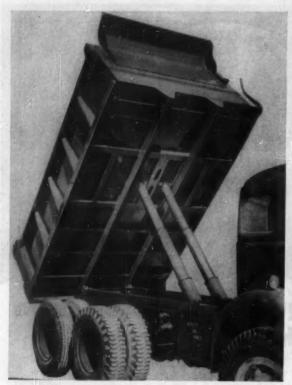
Doubling the pulling power of the most powerful crawler tractors calls for a gear train that's tough and rugged. The Carco Model J winch converts tractor power into line pull efficiently and directly through a 4-stage, constant mesh gear train. The dou-bled line pull is made possible by a high ratio of gear reduction. As faster line speed is generally desired for paying out the line, a lower gear ratio is provided in reverse. Heavyduty gears and shafts of heat - treated special alloy steel guarantee a large overload capacity. Precision cut, gears and shafts, with anti-friction bearings, operate in a continuous oil-bath. Rugged simplicity and fewer parts make Carco winches more dependable and easier to service.

Probably the most versatile equipment on the Alcan project in British Columbia are powerful crawler tractors equipped with dozers and Carco winches. So useful has this "team" proven that 61 Carco winches and hoists have been purchased for this job... the largest number of tractor winches ever known to be used on a construction project.

Pictured is a Carco Model J winch on an International TD24 using tractor's own power to pull this heavy crawler up a steep hillside so it could doze access road down hill.

Powerful, mobile Carco winches double tractor pulling power and increase tractor "reach" . . . they will earn their way for towing, hoisting, loading as well as for emergency rescue equipment. Remember, you can expect greater value from the leading producer, and get it from Carco, first in winch production. PACIFIC CAR AND FOUNDRY COMPANY, Renton, Washington. Branches at Portland, Ore., and Franklin Park, Ill.

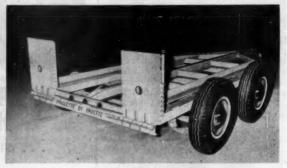




TELESCOPIC HOISTS together with weight saving bodies have made greater payloads possible. This Heil hoist mounts inside or outside of the chassis frame. They come in 21-30-ton capacities.



THIS IS A LOT OF TRUCK! Of the double-tandem chassis type, this Dart Model I5-DT was designed for 54,000 to 60,000 GVW. It has 5 speeds and is powered with a 178- or 200-hp engine.



PICK-UP and smaller trucks can handle this type of trailer with ease. This four-wheel "Haulette" will carry 8,500 to 13,000 lb and a two-wheel model will handle up to 9,000 lb.

## Trucks With Attachments... Contractors Workhorses

• Trucks are so commonplace in any contractor's spread these days they seldom excite comment. Surveys show they have an average life of 3-5 yr, but many of them 10-12 yr old still do a good job. They're used a hundred different ways on many types of operations, but like the tractor, the truck is of little value unless it has an attachment. They all require a body of some sort, mixers, hoists, trailers, winches, cranes and many other profitable additions. Here are a few new attachments being used on trucks today.



HERE'S A NEW TYPE of dump body made of all-welded aluminum by Penn Body Div., Hockensmith Corp., Penn, Pa. Lighter than a comparable steel body, it permits greater payloads and requires less maintenance, says the maker.

THE NAME FRUEHAUF has long been associated with trucks—providing trailers and dump-deck platforms of many descriptions. Such platforms and decks are used by contractors to move loaders, shovels, crushers, and other heavy equipment. This 35-ft model has the rear end of the platform bevelled off to provide firm support on the ground for heavy machinery when it is being unloaded.



Page 136 — Construction METHODS and Equipment — December 1954











crane it outlasted round strand rope by 4 to 1, and still tested at higher-than-rated strength. It was chosen for its super strength to haul the car on the continent's largest cableway at Kitimat.

### **Can Flattened Strand** solve your special wire rope problem?

Hercules Flattened Strand is a special kind of wire rope that provides extraordinary service on special kinds of jobs.





The key to the difference is the triangular shape of the strands. Notice how the strands support each other; how the rope circumference is almost perfectly round; and how the core is smaller. There is 10% more steel in Hercules Flattened Strand than in round strand ropes of the same diameter. That means 10% more strength and 10% greater safety. Flattened Strand wears longer and more evenly . . . and is easier on sheaves and equipment.

If you can use this Super-rope, you'll soon begin saving time, labor, money. Why not investigate?

Because Leschen pioneered and perfected Hercules Flattened Strand wire rope, Leschen is your best source of additional information. Ask your Leschen man, or write for "The Flattened Strand Story."

### LESCHEN WIRE ROPE DIVISION

The Watson-Stillman Company (A SUBSIDIARY OF H. K. PORTER COMPANY, INC.)

St. Louis 12, Missouri



SURVEYING NEWS

### **NEW LEVEL WITH DOUBLE BUBBLE IS** "MISTAKE-FREE





- No need to turn telescope during leveling
- No need to look anywhere but through telescope to adjust level at any turn after initial set-up
- · American type erecting eyepiece, 4 leveling screws
- Unbelievably fast and accurate, yet simple-to-use. Economical!

Mail this coupon for details

### INSTRUMENT CORP. OF AMERICA 11-27 44th Rd., LONG ISLAND CITY, N. Y. Please send me Backlet B with Information on Fennel . . . ☐ Double bubble ☐ Alidades Other levels ☐ Collimeters Transits ☐ Stands ☐ Combinations Tripods ☐ Theodolites Repair of present instruments. (any make) NAME **ADDRESS**

### New PUBLICATIONS From MANUFACTURERS

will keep you posted on latest develop-ments in construction equipment and ma-terials available for your use.

NEW SCRAPER-The Euclid Division of the General Motors Corporation in Cleveland, Ohio, have recently issued a new bulletin form 503 which describes the new S-7 Euclid

DRAFTING ROOM EQUIPMENT-If you're a draftsman and you'd like to obtain a complete catalog together with prices of the equipment manufactured by the Hamilton Manufacturing Company of Two Rivers, Wisconsin, it's now available. writing ask for catalog No. 14.

AC PULL SCRAPER-A new specification sheet (Form MS-571-549) describing the medium-sized rubbertired, pull scraper, Model 108, recently introduced by Allis-Chalmers is now available. This scraper has an 8.4 cu yd struck and 11 cu yd heaped capacity.-Allis-Chalmers Manufacturing Co., Tractor Division, Milwaukee, Wis.

POWER EXHAUSTERS - A new bulletin containing detailed information and performance tables of the Gyra-Flo Power Exhausters is now available without obligation from the Chicago Blower Corp., 9867 Pacific Ave., Franklin Park, Ill.

BLAW - KNOX COMPANY - The manufacturing activities of this company are described in a new 50-p brochure entitled "This Is Blaw-Chief emphasis is placed Knox." upon products and services and their industrial applications. You get this booklet by writing Blaw-Knox Co., Farmers Bank Building, Pittsburgh 30, Pa.

NEED A WHEELBARROW?-A free catalog (No. 44) containing information on all types of wheelbarrows, garden carts, spreader-carts, lawn rollers, concrete carts, mixing boxes and mortar pans, drag scrapers, cokeand gas-fired salamanders, has just been issued by the Jackson Manufacturing Co. of Harrisburg, Pa.

V-BELT CATALOG-An 8-p V-belt catalog giving new horsepower rating tables permitting the design or redesign of V-belt drives at a reduction in cost and describing the Grommet belts in standard and high capacity construction has just been released by the B. F. Goodrich Industrial Products Division, Akron, Ohio.



gineered for all types of heavy trucking, construction

and rigging work. Special emphasis has been placed on STRENGTH, SAFETY and EASE OF OPERATION. Only TOP QUALITY carbon and alloy steels are used in the construction and all parts are drop forged, heat-treated and processed to withstand the most rugged service. Like previous LeBus blocks, the new "Trucker's" Snatch Block requires no tools other than your hands, and can be taken completely apart within a matter of seconds.

For more information write direct or have your supply source write for catalog page 1500 for complete



LEBUS ROTARY

19

4

1

TOOL WORKS, inc. Phone Plaza 9-2771

P. O. BOX 2352 . LONGVIEW, TEXAS

5

1

TEXAS ALUMINUM PLANT "We compacted 380,000 cu. yds. of clay fill to 95% with twenty Rammers in six months. No other equipment would produce required compaction and only the Barco Rammer permitted us to finish the job on schedule."-Consolidated Western Steel Division, Port Lavaca, Texas.

CALIFORNIA PROJECT We had an occasion to compare the Rammer along with two other machines and it was surprising how much more material the Barco Rammer would handle."—Westway Excavating Co., West Los Angeles, Calif.

MIDWEST WATER LINE "The Barco Portable Gasoline Rammer has fulfilled our expectations 100%. It is now in use on a 32,000 foot Water Line Project and is doing a magnificent job in keeping up with our backfilling requirements." - Jones Contracting Co., Detroit, Mich.

### HOUSING PROJECTS

"Soil compaction with the Barco Rammer has been the key to earlier completions and lower costs for us."-Paul Schleicher & Sons, Gary, Ind.

### OHIO TURNPIKE

"Exceptional time and labor is saved in the speed of the Barco Rammer with comparison to our previous method . . . We found it difficult to meet the rigid specifications required by the Ohio Turnpike Commission until we instituted the Barco Rammer, and can recommend it very highly to any organization having to meet specifications." - Angell Construction Co., East Lansing, Mich.

> This photograph shows a Barco Rummer working on the Trenton Freeway in New Jersey.

WHEN YOU'RE UP AGAINST A TIGHT SCHEDULE-

NE of the most important advantages users get with Barco Rammers for soil compaction is ability to handle big jobs in minimum time. When time is at a premium, BARCO PERFORMANCE PAYS DIVI-DENDS!

Time after time, it has been proven that no other type of equipment can match BARCO PERFORMANCE. The Barco Rammer is a completely self-contained unit; no auxiliary or extra equipment is required. On area tamping, where specifications call for 95% to 97.5% (modified Proctor) compaction, one man can average 20 to 30 cubic yards of fill per hour, day after day.

If you are not already using the Barco Rammer for soil compaction work, find out about it now! Worldwide Sales and Service. BARCO MANUFACTURING COMPANY, 512N Hough St., Barrington, Ill.

BARCO RAMMER

For Soil Compaction Close to Walls, Culverts, and Abutments—in Trenches, Ditches



# NEW MODELS NEW FEATURES

INTERNATIONAL keeps 'em coming...
all the time, to do today's truck jobs
better, at lower cost!

INTERNATIONAL continually brings you great new truck features, new all-truck models, new value for your truck dollars, in the world's most complete truck line. International follows this policy to give you right now the developments that will help you do your hauling jobs better, cut your costs and boost your profits. Before you make any truck purchase, check all the new developments shown here—then let your International Dealer or Branch give you all the reasons why an International is your best truck buy.

INTERNATIONAL HARVESTER COMPANY . CHICAGO



NEW increased power, with all-new 201-hp Royal Red Diamond 501 engine standard in new high-power-to-weight 220 Series models.



NEW space-saving, high economy, big capacity CDE models—3 series, 12 models from 21,000 to 30,000 lbs. GVW — 50,000 to 65,000 lbs. GCW. Also available with sleeper cab.



NEW Super Space Saver ROADLINERS conventional truck-tractors that haul all 35-foot trailers in 45-foot limit. GCW, 42,000-65,000 lbs.



NEW factory-installed 50-inch one-man cab that permits balanced, 2-side loading of steel, lumber, pipe and other longerthan-truck materials. 3

4

1

13

1



NEW power steering for all models. New light-duty truck features include tubeless tires, optional automatic transmission and overdrive.



NEW multi-stop models with METRO® bodies — 14,000 to 16,000 lbs. GVW. 10 other models — 5,400 to 11,000 lbs. GVW with METRO and METROETTE bodies — available with new METRO-Matic transmission.



PLUS four-wheel-drive models of 11,000 and 15,000 lbs. GVW—built for lowest cost operation in roughest, toughest terrain.



PLUS factory-installed, Underwriters approved LPG power, available as optional equipment in 54 models from 4,200 to 45,000 lbs. GWW.



PLUS 10 diesel engines for 30 models. The INTERNATIONAL line of 185 basic models offers widest choice of power—30 engines, gasoline, LPG and diesel.



International Harvester Builds McCORMICK \* Farm Equipment and FARMALL® Tractors ... Motor Trucks ... Industrial Power ... Refrigerators and Freezers

See the season's new TV hit, "The Halls of Ivy," with the Ronald Celmans, Tuesdays, CBS-TV, 8:30 p.m., EST

INTERNATIONAL TRUCKS

A Swedish manufacturer: Aktiebolaget Mauritzon & Co. of Malmoe, Sweden, recently announced three new products; one a bench saw with a 22-in. blade uses a 3-hp motor at 1,700 rpm and can be used for cutting off, splitting or grooving. Total weight of this unit is 250 lb. Another addition to the line is a 100gal concrete mixer. This unit, driven by a 5-hp motor uses a vertical water tank which, it is claimed, feeds more accurately than similar concrete mixers, and in half the time. Mixing time is 1 to 2 min. The third new product is an arch crane designed for hoisting materials to floors of a building under construction. It is called the Gecko 450, is handled by one man and all maneuvering is accomplished with one lever. Lifting capacity is 1,000 lb, and it is driven by a 3-hp motor. Hoisting speed is 24 yd. per min.

NEWS REEL—The Unimatic Corp. has just produced a 16mm color and sound movie illustrating the features of the Model CW-4 detachable ditcher. The film of 10-min duration shows the various job applications on which this Unimatic-Caterpillar combination can be used. You can make arrangements to see this film by contacting your local Caterpillar dealer or contacting the company direct.—Unimatic Corp., P. O. Box 1166, Tulsa, Okla.

THE CLEVELAND LINE—The entire line of Cleveland trenching equipment, including the two new Cleveland models, Model 240 trencher and the Model 80W backfiller, are fully described in a 4-p, 2-color bulletin recently distributed by the Cleveland Trenches Co., 20100 St. Clair Ave., Cleveland 17, Ohio. Ask for Bulletin S-120.

AUSTIN-WESTERN CRANE—An 8-p illustrated bulletin describing the hydraulic crane manufactured by Austin-Western is now ready for distribution. It includes specifications and performance data, diagrams and working ranges, manual boom extensions, minimum aisle widths for turns, etc. Ask for Bulletin AD-2253.—Austin-Western Co., Aurora, Ill.

#### WHERE TO BUY

Featuring additional Products, Specialties and Services for the Construction Industry

#### STOP that WATER

With FORMULA NO. 646, a clear liquid which penetrates 1° plus in concrete, brick, stuces, plaster, etc. Seals out water, dirt. Holds 26' head. Use outside and in. Preserves all absorbent materials. Bold 14 years. Quick, economical, sure. 33 in 55's. Free sample. See Bweet's.

HAYNES PRODUCTS CO., OMAHA 3, NEBR.



Malsbary Model 250 cleaned this D4 in less than 60 minutes. Note compact, hard-hitting stream and absence of work-hiding steam.

## Put Pressure on Your Cleaning Costs with the New, Improved Malsbary Model 250

20% Boost in Pressure and Volume, Blasts off Grease, Tar, and Caked Dirt Twice as Fast as Steam Vapor Cleaners

Tough equipment cleaning jobs require lots of hot solution and real impact. There's plenty of both in the new Malsbary 250 HPC (high pressure combination) cleaner. Top pressure has been boosted 20% to 300 p.s.i., volume upped to 360 g.p.h. This pressure delivers cold water, hot solution (steam), or hot rinse with an explosive impact that blasts away stubborn asphalt or caked mud and grease other cleaners can't touch. In addition, you get wet steam and hot water for such jobs as cleaning and degassing tanks, thawing, or concrete mixing in zero weather.

#### Two-way Pay-off

The Malsbary 250 does any cleaning job twice as fast as a steam vapor cleaner; and does most jobs 4 to 10 times faster. Cleaning a D8, for example, takes 1½ to 2 hours with the

Model 250 compared with 8 hours for steam vapor cleaner. You save 6 hours labor, and gain 6 hours of tractor working time. Where you're operating or renting equipment fleets savings in equipment down-time alone on just a few cleaning jobs often more than repay the cost of a Model 250.

Why settle for a half-way cleaner when a Malsbary 250 can cut your cleaning costs in half? For proof, ask your Malsbary dealer to demonstrate on your job now...or write us today for the 8-page catalog describing the new, improved Model 250.



froom C12, 845 92nd Ave., Oakland 3, Calif.

# FLEXCO

#### BELT FASTENERS and RIP PLATES



FOR HEAVY
CONVEYOR
AND
ELEVATOR
BELTS OF
ANY WIDTH

- ★ FLEXCO Fasteners make tight butt joints of great strength and durability.
- ★ Trough naturally, operate smoothly through take-up pulleys.
- \* Distribute pull or tension uniformly.
- ★ Made of Steel, Monel, Stainless, Everdur. Also Promal top plates.
- ★ FLEXCO Rip Plates are for bridging soft spots and FLEXCO Fasteners for patching or joining clean straight rips,



Compression Grip distributes strain over whele plate area

Order From Your Supply House. Ask for Bulletin F-100

FLEXIBLE STEEL LACING CO., 4699 Lexington St., Chicago 44, III.



CYLINDRICAL ROLLER BEAR-INGS—A new catalog fully describing the Tru-Rol line of cylindrical roller bearings with sizes, types, dimensions and load ratings, etc. is available from the Rollway Bearing Co., Syracuse, N. Y.

3

SELF-PRIMING PUMPS—A bulletin describing self-priming centrifugal pumps by Worthington gives information on component parts, characteristics, ranges of applications and a comprehensive chart of the pump models listing dimensions in inches. For additional information or copies address your request for Bulletin No. W-395-B2 to the Worthington Corp., Harrison, N. J.

GRADALL CATALOG—Gradall has just released two catalogs, one for contractors, and the other for highway maintenance and construction, that graphically illustrate the part Gradall plays in the construction industry. Ask for Catalogs G5422 and G5419.—The Warner & Swasey Co., 5701 Carnegie Ave., Cleveland, Ohio.

STRAPPING BROCHURE—A 6-p brochure completely describing the Gerrard line of Bulkbinder heavyduty strapping, strapping tools, and accessories also contains how-to-order information on tensioning tools, sealers, seals, cutters, strappings, accessories and combination units. The brochure also contains photos illustrating all the major product applications. Copy of this publication can be obtained from A. J. Gerrard & Co., 1950 N. Hawthorne Ave., Melrose Park, Ill.

CONCRETE AND MASONRY—A new 16-p catalog shows a complete line of concrete, masonry, lathing and carpentry accessories such as form ties, spreaders, high chairs, slab bolsters and joist hangers in various types and sizes and in addition, several new and unique construction aids.—Conver Steel & Wire Co., Inc., 600 E. 132nd St., New York 54, N. Y.

PORTABLE HEATER — Literature describes the new Ervic portable kerosene heater, which, it is claimed, is a new type combining two combustion chambers which vaporize the fuel and burn all waste products. This new method of vaporizing fuel saves as much as two-thirds of the fuel consumption equalling 100,000 Btu of heat per hr on 2½ to 3 hr per gal, cutting operating cost down to 5 to 6c per hr. Ervic Mfg. Co., 304 E. Wabash Ave., Montpelier, Ohio.

GALION LITERATURE — Action, photos, cutaway views, line drawings, construction features, mechanical details describe the Galion Allsteel Model 12N-4 bodies and Model 740, 770 and 800 hydraulic hoists in a 4-p catalog just published by The Galion Allsteel Body Co., Galion, Ohio.

# therift

is the word for a TRAYLOR TY REDUCTION CRUSHER



3

1

17







# 126,000 Square Ft. LACLEDE STEEL JOISTS

Framing large areas presents no problem with these light-weight, open-web joists. Here, for example, is the 126,000-square-foot Service Building for Scruggs-Vandervoort-Barney, one of St. Louis' leading department stores. Scheduled for completion in early fall, this is one of many buildings throughout the nation erected with Laclede Straight Chord Steel Joists—the choice of more and more contractors for fast, economical construction.

#### OTHER LACLEDE PRODUCTS

LA CLI DE

Multi-Rib Reinforcing Bars • Steel Pipe • Welded Wire Fabric Form and Tie Wire • Spirals • Conduit • Corrugated Steel Centering • Electrical Weld and Ges Weld Tubing

LACLEDE STEEL COMPANY



#### FOR QUICK STARTS

Diesel or Gasoline Engines

Prevents Costly
Delays Pasitive,
Easy Application •
Gives Retarded Detoni
tion • Upper Cylinder
Lubrication Avoids
Dry Start • Quickens
Oil Pressure •
Absolutely Non-Corrosive • Saves Equipment and Batteries
Phone or Wire

Phone or Wire
SPRAY
SPRAY
P.O. Bex 584
Camden 1, N. J.
Telephone
Marchantville 8-7040



#### BIG JOB OF THE MONTH ...

Continued from page 28

Tomlinson Construction Co., 21 King St., East Toronto, Ont. 8.3 mi in La Porte Co. of Indiana-East West Toll Road for Indiana Toll Road Commission, 309 W. Washington St., Old Trails Bldg., Indianapolis, Ind. \$3,990,620.

Dinwiddie Construction Co., Crocker Bldg., and Wagner & Martinez, 181 S. Park St., San Francisco, Calif., Shopping center on university property at Palo Altofor Stanford University, Palo Alto, Calif. \$15.000,000.

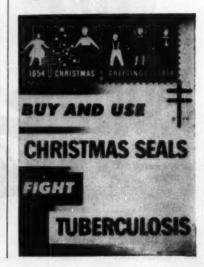
Merritt-Chapman & Scott Corp., 260 Madison Ave., New York City. Hampton Roads tunnel and bridges in Virginia for the Commonwealth of Virginia, Department of Highways, Central Office Bldg., 1221 E. Broad St., Richmond, Va. \$19,050,-461.

Latrobe Road Construction Co. Inc., Latrobe, Pa. Construction of 4.9 mi of northeastern extension in Franconia and Salford Townships, Montgomery County for Pennsylvania Turnpike Comm., 11 N. 4th St., Harrisburg, Pa. \$3,074,-016.

Jefferson Construction Co., 75 First St., Cambridge, Mass. Westfield State Teachers College, Upper Western Ave., Westfield, Mass. for State Dept. of Education, c/o Division of Building Construction, 38 Chauncy St., Boston, Mass. \$2,644,-522.

J. C. Boespflug Construction Co., 605 S. Lucas St. Los Angeles, Calif. Westchester high school, Los Angeles, for Los Angeles Board of Education, 1425 San Pedro St., Los Angeles. \$4,213,000.

18





# IN QUARRYING explosives research pays off

Good fragmentation and a low bank of broken stone—here's a typical example of how explosives research pays off. In quarrying, the proper selection and efficient use of industrial explosives minimize the need for secondary blasting, speed shovel production, and contribute to an overall economical operation.

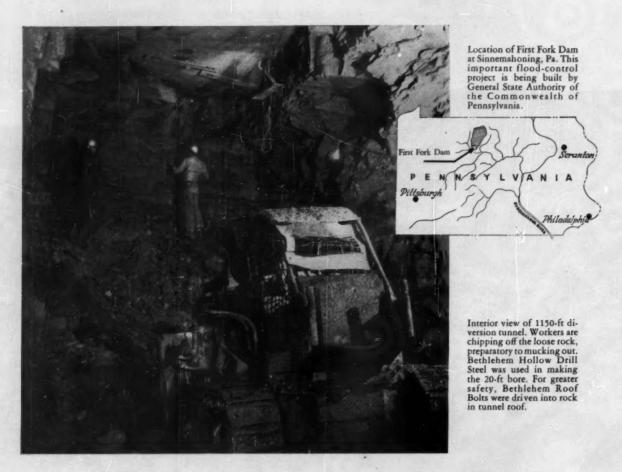
Hercules is a pioneer in the manufacture of explosives, detonators, and in the development of modern blasting methods. Hercules' extensive service facilities are at your disposal for solving blasting problems, not only in quarrying, but for mining, on construction jobs, and in exploring for petroleum—in fact, wherever explosives are used.

#### HERCULES POWDER COMPANY

Explosives Department, 974 Market St., Wilmington, Del.



Birmingham, Ala.; Chicago, Ill.; Duluth, Minn.; Hazleton, Pa.; Joplin, Mo.; Los Angeles, Calif.; New York, N. Y.; Pittsburgh, Pa.; Salt Lake City, Utah; San Francisco, Calif.



### New 1150-ft Tunnel is Part of Pennsylvania Flood-Control Project

One of the most ambitious flood-control projects yet attempted by the General State Authority of the Commonwealth of Pennsylvania is now underway on the First Fork Sinnemahoning Creek. The project is called the First Fork Dam. It is aimed at alleviating damage caused by floods on the West Branch of the Susquehanna River, in Cameron and Potter Counties.

Upon completion in 1956, the 1650-ft long dam will have a 170-ft-high stone and earth embankment, and a 210-ft-high concrete intake structure.

Part of the project is a diversion and water-control tunnel, hewn through solid rock in an adjacent mountainside. This subterranean channel, now in operation, diverts the First Fork Sinnemahoning Creek. It has a two-fold purpose—facilitating the closing of a gap in the breastwork of the dam, and providing for the normal flow of the stream.

The tunnel consists of a 20-ft-diameter bore, 1150 ft long. After lining with concrete, its finished diameter was 16 ft. Construction of the tunnel necessitated the removal of 14,500 cu yd of medium-hard and abrasive grey sandstone and red shale.

The sub-contractor for the tunnel, Lewis and Bowman, Inc., Goldsboro, N. C., used a large quantity of 1 in. hexagon Bethlehem Hollow Drill Steel, fitted with carbide-insert bits. The rock footage drilled by stopers, drifters and jumbos was approximately 55,000 ft. Blast holes were 10 ft deep. Reconditioning was done by Howells Mining Drill Company, Plymouth, Pa. Prime contractor for the project was Nello L. Teer Company, Durham, N. C.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation

Two Grades of

### BETHLEHEM HOLLOW DRILL STEEL

CARBON · ULTRA-ALLOY (chrome moly)



17

1

#### Advertisers in this Issue

Number of copies of this issue printed 39,394

	A
Adams Mfg. Co., J. D	Surety Co
Aetna Casualty and	Surety Co
Allison Div., General	ter Div.)42, 43, 151
American Steel & W	ire Div., 79 71
Athey Products Corp	Si
	B
Barber-Greene Co	41
Barco Mfg. Co	e
Bethlehem Steel Co.	e
(Blaw-Knex Equips	ment Div.)
Broderick & Bascom	Rope Co 32
Buen Mig. Co	184
Buda Co., Div. Allis-Chalmers Mfg	. Co 2nd cover
Burmeister Co., L Butler Bin Co	
sucier Bill Co	4
	C
heyrolet Div. Gener	o
hrysler Corp.	m stotora 113
(Industrial Engine Ities Service Oil Co.	Div.) 77
lark Equipment Co.	11
lipper Mfg. Co	92
onstruction Machine	96
ummins Engine Co., of	Inc
/	D
odge Div., Chrysler JuPont de Nemours	Corp. 12 & Co., Inc. E. I.
(Textile Fiber Dept	. Nylon Corp.) 34, 35
	E
conomy Forms Cor	p 116
Simeo Corp., The	Motors Corp 93
	P
ennel Instrument Co	orp. of Amer 138
lexible Steel Lacing	82  orp. of Amer. 138  Co. 142  quip. Div.
Blaw-Knox Co	149
	G
MC Truck & Coach	
General Motors	Div., 122 
oodrich Co., The B.	F. 128
(Tire & Equipment reer Hydraulies, Inc.	Div.)
riffin Wellpoint Cor	D 148
	R
arniachfeger Corn.	
artford Fire Insura	nce Co
ercules Motors Corp	67
ercules Powder Co. (Explosives Dept.)	141 
etherington & Berne	er, Inc 114
omelite Corp.	45
ough Co., Frank G.	68
	1
ternational Harveste	er Co., Inc.
(Motor Truck Div.)	140
wa Mfg. Co	er Co., Inc. Div.)
aeger Machine Co. 7	J The
ohns Manville	
onnaon Co., C. B	

7

(Continued on page 148)

How THORITE patches and THOROSEAL seals concrete structure of building and give it that new look!

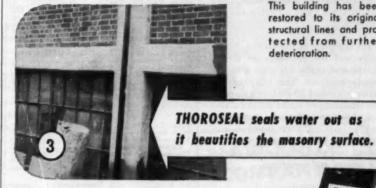
**Abrasive Products Company Braintree**, Massachusetts







- 1 Before patching with Thorite, loose concrete is removed and rust cleaned from reinforcing rods.
- 2 Thorite is then applied, bringing patch to surrounding surface. THORITE will not shrink.
- 3 A coat of Thoroseal is then given the patched section and all exposed concrete of similar areas. This building has been restored to its original structural lines and protected from further deterioration.



Get our pictorially-described literature in detail "HOW TO DO IT."



Standard Dry Wall Products, Inc. NEW EAGLE, PENNSYLVANIA

December 1954 — Construction METHODS and Equipment — Page 147

## WET JOBS

#### INTERCEPTING SEWER

Staten Island, N. Y.

Contractor: Nicholas DiMenna & Sons



#### PUMP 20 MILLION GALS PER DAY TO KEEP SUBGRADE DRY

THE CENTER-LINE of this excavation was less than 300 ft from the Atlantic Ocean, which fairly flooded through the highly pervious sand.

- The problem was to lower 28 ft of groundwater in a 30-ft cut for a new concrete intercepting sewer—to do this on a site where contractors could recall previous experience of tough water-fighting at an excavation depth of only 16 ft, even with aid of wellpoints. Thus, the outlook was not exactly rose-colored.
- Yet the plan of the Griffin engineers and the efficiency of their pumps and wellpoints gave a sure, speedy solution. The truly enormous volume of 20 million gals per day was pumped under perfect control, keeping subgrade bone-dry and permitting economical open cut, except where sheeting was required (see photo) to protect existing sewers and structures.

## GRIFFIN

#### WELLPOINT CORP.

881 East 141st Street, New York 54, N. Y. Hammond, Ind., Houston, Tex., Jacksonville, Fla.

In Canada: Construction Equipment Co., Ltd. Taronto Montreal Hollies

#### Advertisers Index

(Continued from page 147)

K 

 Koehring Co.
 27

 Kohler Co.
 100

 Kwik-Mix Co.
 27

 Laclede Steel Co.
 144

 Lebus Rotary Tool Works, Inc.
 138

 Leschen Wire Rope Div.
 137

 H. K. Porter Co., Inc.
 137

 Liberty Mutual Insurance Co.
 28

 Link-Belt Speeder Corp.
 41

 Lone Star Cement Corp.
 5

 Luber-Finer, Inc.
 124

 Lubriplate Div.
 Fiske Bros. Refg. Co.
 86

 McKiernan-Terry Corp.
 134

 Macwhyte Co.
 3

 Malsbary Mfg. Co.
 141

 Manhattan Rubber Div.
 127

 Master Builders Co.
 3rd cover

 Mayo Tunnel & Mine Equipment
 134

 Mid-Western Industries, Inc.
 111

 Moretrench Corp.
 75
 North America, Insurance Co. of ...... 98
Northwest Engineering Co. ..... 7 Owen Bucket Co., The ..... 80 

 Pacific Car & Foundry Co.
 135

 Parsons Co.
 27

 Patent Scarfolding Co., Inc., The
 95

 Pettibone Mulliken Corp.
 85

 Phillips Petroleum Co.
 119

 Powder Power Tool Corp.
 83

 Quaker Rubber Corp., Div., H. K. Porter Co., Inc. . . . . 
 Ramset Fasteners, Inc.
 130

 Raybestos-Manhattan, Inc.
 127

 Remington Arms Co.
 (Industrial Sales Div.)
 133

 Rockwell Spring & Axle Co.
 45,49

 Roebling's Sons Corp., John A.
 117

 Rogers Bros. Corp.
 10

 Texas Co., The
 18, 19

 Thew Shovel Co., The
 33

 Timken-Detroit Axio Div.,
 8, 49

 Rockwell Spring & Axle Co.
 48, 49

 Timken Roller Bearing Co.
 4th cover

 Traylor Engrg. & Mfg. Co.
 143

 Twin Disc Clutch Co.
 116

 Union Metal Mfg. Co., The
 105

 Union Wire Rope Cern.
 89

 Unit Crane & Shovel Corp.
 22

 United States Steel Corp.
 72, 73, 97

 Universal Engrg. Corp.
 85

 Universal Form Clamp Co.
 129

(Continued on page 150)



## HEATING KETTLES

Fire Proof — Oil Burning Hand and Motor Driven Spray

#### Other Products CONCRETE VIBRATORS

Gasoline Engine and Electric Motor Driven Models

#### FRONT END SHOVELS

For Industrial Tractors

#### AGGREGATE DRYERS

for Stone and Sand

#### **ASPHALT PLANTS**

Portable — Stationary

Write for Circulars

ELKHART 6

INDIANA

White Mig. Co.



#### IT TAKES

TW 0

#### DISPLAY ADVERTISING

Arouses Interest
DIRECT MAIL

· Crantes Preference

17

1

DIRECT MAIL

Gets Personal Attention

Triggers Action

After your prospect has been convinced by Display Advertising, he still must oct. A personalized mailing piece, is a sowerful action-getter. Send for our Industrial



Mc GRAW-HILL DIRECT MAIL LIST SERVICE

Direct Mail Division, McGraw-Hill Publishing Co., Inc. 330 West 42 St., N. Y. 36, N. Y.

Please ferward my free copy of the McGraw-Hill "Industrial Direct Mail Catalogue."

Name\_\_\_

Company\_

Address.

-

\_\_State\_

# You can sell the ADVANTAGES of this machine to your CUSTOMERS! Leging purking latin a filling station

ANYTHING you can do to make an asphalt job cheaper and easier for your customer is an advantage to you. The Adnun Jr. has many advantages over the ordinary hopper on wheels. You can use these advantages in selling your customer.

Engine power permits maneuvering without load into new positions, saving truck time. You finish the job in less time. The toothed Oscillating Cutter Bar cuts the pavement off at the right thickness. Tooth design assures an initial compaction. Oscillating action permits material to "bed down" properly. These features combine to eliminate under-surface tears and assure a density of texture that means long life.

Overlapping Cutter Bar action means tight longitudinal joints and reduces time consuming hand work. The unusual advantage of Adnun Continuous Course Correction gives a smoother, more accurate job that reduces low places where water can collect and eliminates thin spots where pavement breakdown begins.

No other tow-type rig can give you these features. The Adnun Jr. makes it possible to sell the customer on a better job and puts you in a position to make a better bid. There is more to the story.



ADNUN JR

BLACK TOP PAVER

BLAW-KNOX COMPANY

FOOTE CONSTRUCTION EQUIPMENT DIVISION

1910 State Street Nunda, New York



#### **DOLLARS FOR IDEAS**

Established manufacturer of concrete vibrators, screeds and trowels wants ideas for design of new construction equipment. Experienced contractors and construction men invited to submit ideas ideas for equipment not presently being manufactured. We will pay royalty on any patentable items we decide to manufacture.

Send ideas to:

#### STOW MANUFACTURING CO.

31 Shear Street, Binghamton, N. Y.

ENGINEERS-FOREMEN-OFFICE MEN

Learn latest methods to organize and run work. Prepare for the top jobs.

Send post card for details GEO. E. DEATHERAGE & SON CONSTRUCTION CONSULTANTS 411 5th Ave., Lake Worth, Florida

#### FOR SALE

#### Save Half the Cost of Diesel Fuel Injection Maintenance Parts with HANCOCK'S

**Factory-Type Reclamation Service** Some Examples of How We Save You Money: Caterpillar Nozzle — Hancock reclaimed, pop pressure set, gaskets furnished, ready for installation, any size only: \$10.70 Caterpillar Pump — Hancock reclaimed, tested, calibrated, 7-8-10 MM, Right or Left Hand Helix, only \$12.00 For Your GMC Diesel: Injector, No. 71 (or 110), tested to factory specifications ofter run-in period; comes in any out-put—High Value Sizas; Quick Service. for Your Cummins—Complete Injectors: Factory-type production workmanship, rebuilt to manufacturer's specifications; quick service.

#### WRITE FOR CATALOG

In Most Areas You Get Quickest Service From Your Nearby Diesel Injection Service Shop. If There is No Honcock Deeler in Your Area, Send Wern Parts Direct to the Factory by Parcel Pest or Railway Express (prepaid), to:

#### HANCOCK

Diesel Service Co., 370 Walnut St., Findlay, Ohio

#### FOR SALE-RELAYING RAIL

N. E. SALZBERG CO., INC. DEPT. 103 225 Breadway—New York 7, N. Y.—Rester 2-1800

#### 50 ton SCREW JACKS-NEW

12 ca. BUDA #5910 Journal Jacks 28 ca. DUFF-NORTON \$5037 (27" high—with 2000—for lift; 13½ "rise) 2000—Tumbuckles % "12" eye & eye-forged — Chicago Hidws. 31.0 ss. for the lot. Steam Hose—1606—155 & 200 lb. pressure. 1" 1.D. New—Choscott

TOOL DESIGN & EQUIP. CO. 225 Lafayette St., N. Y. 12, N. Y

REPLIES (Boz No.):
Address to office nearest you
NEW YORK: \$50 W, 4s St. (\$6)
CHICAGO: \$50 N. Michigan Ave. (\$11)
SAN FRANCISCO: 68 Post St. (\$6)

#### EMPLOYMENT

#### POSITION WANTED =

YOUNG MAN desires position as heavy equip-ment operator. Fully qualified, with refer-ences, on all types and yardages of heavy equip-ment. PW-4745, Construction Methods.

#### EQUIPMENT--used-surplus

#### For Sale :

cast Iron Pipe & Fittings: Largest jobber's stock in nation sises 2" thru 54", bell & spigot, mechanical joint & flanged. Also complete line municipal castings. Call us collect 4-2649, Mabry Foundry Co., Beaumont, Texas.
For Rale: 1946 Butler Tank Trailer on Tandem Axles. 4800 gallon capacity. \$1500.00. E. J. Pennig Company, 475 W. Minnehaha, St. Paul 3, Minn.

Priced to Sell: New model Harris 4-wheel drive tracter, 59 drawbar H.P., with heavy duty 1-yd. hydraulic loader. Used very little. Rasmus-sen Drainage Co., Tyler, Minnesota.

Save \$7,000 on \$31,000 Sierra Loader, Model C-30. Thirty foot conveyor. Excellent condition, Used only 1 month. Price for quick sale \$24,000. Holmes-Talcott, 599 Franklin Avc., Hartford,

Cons.

For Sale: Two used 25 h.p. vertical Pomona turbine pumps; type H4E, single stage, serial numbers SD2337, SD2338, 3 phase, 22° volts, 50° 6° cycles 146° 177° RPM, Westinghouse Motor. 8°° GPM at 79′ head, 16°° GPM at 40′ head, 1°″ threaded suction and discharge. Commercial Filters Corporation, John M. Colonas, 2 Main Street, Melrose 76, Massachusetts.

#### WANTED

Construction, light equipment for use in home building, etc., wanted for our dealers overseas. Suitable for sale or rental. Exclusive agency basis. Perma-Stone International Ltd., 320 Fifth Avenue, New York 1.

#### OFFICIAL PROPOSALS

POWER AUTHORITY OF THE STATE OF NEW YORK ST. LAWRENCE POWER **PROJECT** ADVERTISEMENT FOR

PROPOSALS FOR THE FURNISHING AND DELIVERING OF CONCRETE AGGREGATES

CONCRETE AGGREGATES

NEAR MASSENA, ST. LAWRENCE COUNTY,
NEW YORK

SPECIFICATION NO. PA-5-11013

ST. LAWRENCE CONTRACT NO. P4

NOTICE TO CONTRACTORS: The POWER
AUTHORITY OF THE STATE OF NEW YORK
will receive sealed proposals for the production,
furnishing, and delivery of concrete aggregates
to Massens, New York until 10:30 AM. Eastern
Standard Time on the 21st day of December
1954 at the Authority's Office, 270 Broadway,
Room 1207A, New York 7, New York, at which
time and place proposals will be publicly opened
and read aloud.

The principal items are:
Estimates: \$90,000 tons Natural or Manufactured Sand Fine Aggregate.

1,700,000 tons Crushed Rocks Coarse Aggregate
in four grades.

Specifications and Proposal Forms are on file
in the Authority's office and in the office of the
Engineer, Uhl. Hall & Rich, 230 Congress
Street, Boston 10, Massachusetts, and the HydroElectric Power Commission of Ontario, 620
University Avenue, Toronto 2, Ontario, and may
be inspected by prospective bidders during office
hours.

Specifications and Proposal Forms may be

be inspected by proposal Forms may be hours.

Specifications and Proposal Forms may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1300, New York 7, New York after November 15, 1954, upon application and prepayment of a fee of Five (\$5.00) dollars per set of two bound copies of contract documents, no part of which will be refunded.

of contract documents, no part or some five (\$5.00) dollars per of contract documents, no part or some five five (\$5.00) dollars per of the proposal forms included in and bound with contract documents. Guarantee will be required with each bid in an amount not less than 10 percent of the maximum price bid.

The right is reserved to reject any or all bids.

W. S. CHAPIN

GENERAL MANAGER

#### Advertisers Index

(Continued from page 148)

15

E.V

10

1

T

 Water Seals, Inr.
 4

 White Co., David
 94

 White Mfg. Co.
 148

 White Motor Co., The
 37

 Whiteman Mfg. Co.
 115

 Wickwire Spencer Steel Div.,
 23

 Colorado Fuel & Iron Corp.
 23

#### SEARCHLIGHT SECTION

(Classified Advertising)

H. E. Hilty, Mgr. **Employment** Positions Wanted ...... 150 Educational. **Business Opportunities** Equipment (Used or Surplus New) For Sale .....

#### CONSTRUCTION AETHODS AND EQUIPMENT

330 West 42nd St., New York 36 -LO 4-3000 E. E. WEYENETH, Advertising Sales Manager HOWARD T. OLSEN, Business Manager



ber of Associated Business F and Audir Bureau of Circula

Sales Representatives

New York 36, 330 W. 42nd St. H. T. BUCHANAN Philadelphia 3, 17th and Sansom Sts. R. H. LARSEN Atlanta 3, 801 Rhodes-Haverty Bldg. W. D. LANIER, JR. Cleveland 15, 1510 Hanna Bldg. W. E. DONNELL Chicago 11, 520 N. Michigan Ave. KNOX BOURNE, D. J. McGRATH St. Louis 8, Continental Bldg.
B. F. HORN Dallas 1, First National Bank Bldg. Los Angeles 17, 1111 Wilshire Blvd. H. L. KEELER

Other Sales Offices

San Francisco 4, 68 Post St.

Detroit 26: 856 Penobscot Bldg. Pittsburgh 22: 738 Oliver Bldg. Boston 16: 350 Park Square Bldg. London E.C. 4: 95 Farringdon St.

R. E. DORLAND

# Pace-Setting HD-5G Tractor Shovel NOW BETTER 3 WAYS



From the time of its introduction seven years ago, the Alis-Chalmers HD-5G Tractor Shovel has been tops in popularity. Many thousands are daily proving their ability and versatility on all kinds of material handling and excavating jobs.

Now, design refinements make the HD-5G a three-way better value than ever before:

#### 1. Has Bigger Rated Capacity

1

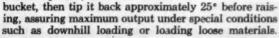
V

New bucket handles a big 1¼-yd load — streamlined design now helps roll in large loads with less tractor effort. The back of the bucket has been brought forward and the sides extended to cut spillage, put more payload where it's wanted.

#### 2. Helps the Operator Do More

Cleaner dumping with the new bucket saves the operator time and effort shaking out loads.

For added versatility, there is a two-position bucket available with both standard automatic return to digging position and operator-controlled tip-back, If the operator chooses to use the controlled tip-back, he can load the



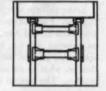
The HD-5G helps the operator do more in other ways, too — giving him full vision, fast and easy control, cleaner platform and more comfortable seat from

which to work, and more working time with truck wheels, support rollers and idlers that need greasing only once every 1,000 hours.

#### 3. Works at Lower Cost

The HD-5G now works at even lower cost than ever before — not just because it does more, but because it has features that mean less maintenance, longer life. For

instance, new type tubular bracing on the bucket booms provides added strength and support, keeps the bucket in line. The floor at the rear of the new bucket has been raised seven degrees to reduce wear on the bottom sheet. Heavy-duty truck wheels and idlers are avail-



able for particularly tough working conditions. Onepiece, full-length main frame permits unit construction so that major assemblies can be removed without disturbing adjacent units, putting tractor back on the job in hours rather than days.

#### Ten Quick-Change Attachments Add to HD-5G Versatility

Buildozer Angledozer Narrow Bucket Rock Bucket Crane Hook Light Material Bucket Trench Hoe Lift Fork Tine Fork
Rock Fork
— also rearmounted Ripper

See your Allis-Chalmers dealer for more about these and other production-boosting features of the popular HD-5G Tractor Shovel.

ALLIS-CHALMERS

# Methods Memo.

"A COMPANY CAN ACCUMULATE a lot of experience in 85 years." So runs a statement in an excellent anniversary book published by the Geo. W. Rogers Construction Corp., New York, on the occasion of its 85th birthday. The fourth president, Geo. W. Rogers, also is chairman of the board and is an everlasting booster of the Port of New York which his company has helped build, maintain and modernize for almost a century.

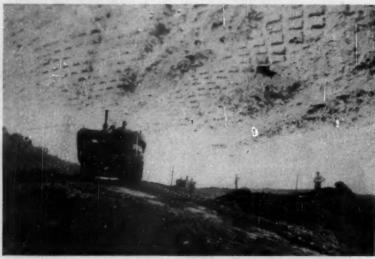
His organization has every right to be proud of its many accomplishments over all these years. But he sees to it that modern techniques and equipment are employed and points out that more than 90% of all Rogers business has been on a straight contract basis without the protection of escalator clauses. And for the future, the company is eager to continue playing a major role in further development of "the world's greatest port."

WINTER CONCRETING has become a normal operation on the construction scene. But cold weather work calls for some additional know-how and ingenuity to come up with a good finished job. How is your library of information on this vital subject? Have you seriously gone out to accumulate published information on how to beat Old Man Winter? You can get it from groups like the Portland Cement Association, 33 W. Grand Ave., Chicago 10, and the American Concrete Institute, New Center Bldg., Detroit 2.

Some private specialists can be helpful, too. For instance, Master Builders Co., 7016 Euclid Ave., Cleveland 3, sent us several of its technical bulletins which are packed with specific information on what to do under many circumstances. The cement suppliers and other related companies are anxious to help. Ask them for their publications and begin a library that can do you a lot of good.

CONFIDENCE IN THE ECONOMY of this country is expressed in a decision by the Blaw-Knox Company to build a modern plant on a 40-acre tract in Mattoon, Ill., to manufacture its full line of roadbuilding equipment. The plant will combine the activities of three widely scattered plants and provide additional production capacity.

DO THEY KNOW how much equipment and tools cost? We have been inside a number of industrial plants, govern-



TRACKS IN THE SKY are real. They were not put there by the angels, but by solid earth-movers. Freak print resulted when two photo negatives stuck together. Pix show Allis-Chalmers screper and tractor (in background) cutting down hills and filling valleys on a housing site in Los Angeles for the J. A. Thompson & Son Construction Co., Inglewood, Calif.

ment and military installations where "price tags" were hung or painted on walls and equipment—telling the workers how much each item would cost for replacement. A recent one is the Clark Equipment Co. plant in Battle Creek, Mich. Pricing of production equipment at Clark has reduced tool breakage costs by 20%, and there is substantially less machine downtime. Has any contractor tried this plan? We should like to hear from some of you.

FURTHER DIVERSIFICATION is the aim of the Harnischfeger Corp., Milwaukee, in the purchase of patent and manufacturing rights to the Sierra Loader from the C & D Manufacturing Co., Sacramento, Calif. The Sierra is one of the larger elevating loaders, diesel-powered, tractor-drawn, and having found so far, a wide use in the western states. When loading into haul units, its capacity ranges up to 1,000 yd per hr under good conditions. When sidecasting, it has handled up to 2,000 yd. per hr. Sales will be handled through the Power Crane and Shovel Division of P&H.

TRUSS AND ROOF FAILURES on construction projects have caused the California division of industrial safety to issue a set of recommendations for truss erectors and general contractors.

The division said its investigations of

these accidents showed that they might have been avoided if established stepby-step procedures were followed.

In California it is not uncommon to find companies that specialize only in the design and erection of trusses, leaving the installation of rafters, purlins, roof sheathing and ceiling joists to a general contractor.

Where this is a practice, the truss designer, the division of industrial safety said, should leave with the general contractor an instruction guide that will enable him to complete the roof structure phase safely.

This procedure, the division maintains, would reduce the possibility of over-stressing the trusses with loads that should not be applied until the trusses have been stabilized.

The division, therefore, is requiring contractors who do much roof structure work to follow an instruction guide approved by the truss designer.

MODULAR COORDINATION (principle of design and construction which relates all building materials to a common denominator of a 4-in. cube) has been endorsed officially by the Bricklayers, Masons and Plasterers International Union meeting in biennial convention in Cleveland. The modular measure system was developed by the American Standards Association and is sponsored by the American Institute of Architects.



General Hospital Neurological Building, Philadelphia, Penna. Archt.—Harbeson, Hough, Livingston & Larson; Contr.— McCloskey & Co., Inc.—both of Philadelphia. Pozzolith Ready-Mixed Concrete supplied by The Warner Co., Philadelphia.



St. Joseph's Hospital Addition, Burbank, Calif. Archt. - John W. Maloney, Seattle, Wash.; Contr. -- Pozzo Construction Co., Los Angeles. Pozzolith Ready-Mixed Concrete supplied by Jewel City Ready-Mix Co., Beverly Hills.



Permanente Foundation Hospital, Los Angeles, Calif. Archt. - Wolff and Phillips, Portland, Oregon; Contr.—C. L. Peck, Los Angeles. Pozzolith Ready-Mixed Concrete supplied by Graham Brothers Co., Los Angeles.



Veteran's Hospital, New Orleans, La. Archts.—Favrot, Reed, Mathes & Bergman, New Orleans; Faulkner, Kingsbury & Stenhause, Washington, D.C.; Contr.—Robert E. McKee, Dallas, Tex. Pozzolith Concrete batched at job site.

## concrete produced with POZZOLITH

Contractors benefit from Pozzolith Concrete in faster, better, lower-cost construction because Pozzolith:

- improves plasticity . . . for easier placing
- · increases cohesiveness . . . for reduced bleeding
- · reduces shrinkage . . . for less cracking
- e reduces segregation defects . . . for lower finishing costs

These are several of the reasons why 60,000,000 cubic yards of concrete were produced with Pozzolith in the past five years.

Full information on Pozzolith and "see-for-yourself" demonstration kit sent upon request.





DERS 6



# Transmission gives 10 speeds forward and 2 reverse, TIMKEN® bearings give smooth flow of power

THIS versatile new Caterpillar DW15 Tractor delivers 150 horse-power with 10 forward speeds and 2 in reverse. To make sure its transmission gives a dependable and smooth flow of power, even under the toughest and most rugged of working conditions, Caterpillar mounts the main pinion on Timken® tapered roller bearings.

Because of their tapered construction, the Timken bearings take both radial and thrust loads in any combination. Full line contact gives extra load-carrying capacity. The pinion stays aligned. Gears mesh accurately and smoothly with minimum timeout for maintenance and repairs. And there's less loss of transmission power because Timken bearings practically eliminate friction. Here's why: Timken bearings are designed to give true rolling motion and they're manufactured to live up to their design.

Closures are more effective, because Timken bearings keep housings and shafts concentric. Dirt and moisture stay out while lubricant stays in. And Timken bearings normally last the life of the tractor. One big reason: they're made of Timken fine alloy steel, the finest ever developed for roller bearings. We have to

make our own steel because that's the only way we can get steel good enough for Timken bearings. No other U. S. bearing manufacturer does it.

Your equipment should have all the advantages only Timken tapered roller bearings can give you. Specify Timken bearings—look for the trademark "Timken" on every bearing. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".



This symbol on a product means



#### MAGNIFYING GLASS INSPECTION OF EVERY ROLLER!



Every one of the over one billion Timken bearing rollers produced every year is inspected with powerful magnifying glasses to detect surface flaws. It's just one example of how the Timken Company insures uniform high quality. TIMKEN
THADE-MARK REG. G. G. PAT. OFF.
TAPERED ROLLER BEARINGS

